

# MIND

## A QUARTERLY REVIEW

OF

## PSYCHOLOGY AND PHILOSOPHY.

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### I.—THE PERCEPTION OF SPACE. (I.)

By Professor WILLIAM JAMES.

#### 1. *The Extensive Quality.*

IN the sensations of hearing, touch, sight and pain we are accustomed to distinguish from among the other elements the element of voluminousness. We call the reverberations of a thunderstorm more voluminous than the squeaking of a slate pencil; the entrance into a warm bath gives our skin a more massive feeling than the prick of a pin; a little neuralgic pain, fine as a cobweb, in the face, seems less extensive than the heavy soreness of a boil or the vast discomfort of a colic or a lumbago; and a solitary star smaller than the noonday sky. In the sensation of vertigo, dizziness or subjective motion, which recent investigation has proved to be connected with stimulation of the semi-circular canals of the ear, the spatial character is very prominent. Whether the "muscular sense" directly yields us knowledge of space is still a matter of litigation among psychologists. Whilst some go so far as to ascribe our entire cognition of extension to its exclusive aid, others deny to it all extended quality whatever. Under these circumstances we shall better adjourn its consideration; admitting however that it seems at first sight as if we felt something decidedly more voluminous

when we contract our thigh muscles than when we twitch an eyelid or some small muscle in the face. It seems moreover as if this difference were not wholly explained by traction on different amounts of skin and joint.

In the sensations of smell and taste this element of varying vastness seems less prominent but not altogether absent. Some tastes and smells appear less extensive than complex flavours, like that of roast meat or plum pudding on the one hand, or heavy odours like musk or tuberose on the other. The epithet *sharp* given to the acid class would seem to show that to the popular mind there is something narrow and, as it were, streaky, in the impression they make, other flavours and odours being bigger and rounder.

The sensations derived from the inward organs are also distinctly more or less voluminous. Repletion and emptiness, suffocation, palpitation, headache, are examples of this, and certainly not less spatial is the consciousness we have of our general bodily condition in nausea, fever, heavy drowsiness and fatigue. Our entire cubic content seems then sensibly manifest to us as such, and feels much larger than any local pulsation, pressure or discomfort. Skin and retina are, however, the organs in which the space-element plays the most active part. Not only does the maximal vastness yielded by the retina surpass that yielded by any other organ, but the intricacy with which our attention can subdivide this vastness and perceive it to be composed of lesser portions simultaneously coexisting alongside of each other, is without a parallel elsewhere. The ear gives a greater vastness than the skin, but is considerably less able to subdivide it.

Now my first thesis is, that this element, discernible in each and every sensation, though more developed in some than in others, is the original *sensation of space*, out of which all the exact knowledge about space that we afterwards come to have is woven by processes of discrimination, association and selection. Extensiveness, on this view, becomes an element in each sensation just as intensity is. The latter everyone will admit to be a distinguishable though not separable ingredient of the sensible quality. In like manner extensiveness, being an entirely peculiar kind of feeling indescribable except in terms of itself, and inseparable in actual experience from some sensational quality which it must accompany, can itself receive no other name than that of *sensational element*.

It must now be noted that the vastness hitherto spoken of is as great in one direction as in another. Its dimensions are so vague that in it there is no question as yet of surface

as opposed to depth; 'volume' being the best short name for the sensation in question. Sensations of different orders are roughly comparable, *inter se*, with respect to their volumes. This shows that the spatial quality in each is identical wherever found, for different qualitative elements, *e.g.*, warmth and odour, are incommensurate. Persons born blind are reported surprised at the largeness with which objects appear to them when their sight is restored. Franz says of his patient cured of cataract: "He saw everything much larger than he had supposed from the idea obtained by his sense of touch. Moving, and especially living, objects appeared very large." Loud sounds have a certain enormousness of feeling. It is impossible to conceive of the explosion of a cannon as filling a small space. In general, sounds seem to occupy all the room between us and their source; and in the case of certain ones, the cricket's song, the whistling of the wind, the roaring of the surf, or a distant railway train, to have no definite starting point.

In the sphere of vision we have facts of the same order. "Glowing" bodies, as Hering says, give us a perception "which seems *roomy* (*raumhaft*) in comparison with that of strictly surface colour. A glowing iron looks luminous through and through, and so does a flame."<sup>1</sup> A luminous fog, a band of sunshine, affect us in the same way. As Hering urges:—

"We must distinguish *roomy* from superficial, as well as distinctly from indistinctly bounded, sensations. The dark which with closed eyes one sees before one is for example a *roomy* sensation. We do not see a black surface like a wall in front of us, but a space filled with darkness, and even when we succeed in seeing this darkness as terminated by a black wall there still remains in front of this wall the dark space. The same thing happens when we find ourselves with open eyes in an absolutely dark room. This sensation of darkness is also vaguely bounded. An example of a distinctly bounded *roomy* sensation is that of a clear and coloured fluid seen in a glass; the yellow of the wine is seen not only on the bounding surface of the glass; the yellow sensation fills the whole interior of the glass. By day the so-called empty space between us and objects seen appears very different from what it is by night. The increasing darkness settles not only upon the things but also *between* us and the things, so as at last to cover them completely and fill the space alone. If I look into a dark box I find it *filled* with darkness, and this is seen not merely as the dark-coloured sides or walls of the box. A shady corner in an otherwise well-lighted room is full of a darkness which is not only *on* the walls and floor but *between* them in the space they include. Every sensation is there where I experience it, and if I have it at once at every point of a certain *roomy* space, it is then a voluminous sensation. A cube of transparent green glass gives us a spatial sensation; an opaque cube painted green, on the contrary, only sensations of surface."<sup>2</sup>

<sup>1</sup> Hermann's *Handb. d. Physiol.*, Bd. iii. 1, s. 575.

<sup>2</sup> *Ibid.*, s. 572.

There are certain quasi-motor sensations in the head when we change the direction of the attention, which equally seem to involve three dimensions. If with closed eyes we think of the top of the house and then of the cellar, of the distance in front of us and then of that behind us, of space far to the right and then far to the left, we have something far stronger than an idea,—an actual feeling, namely, as if something in the head moved into another direction. Fechner was, I believe, the first to publish any remarks on these feelings. He writes as follows:—

“When we transfer the attention from objects of one sense to those of another we have an indescribable feeling (though at the same time one perfectly determinate and reproducible at pleasure) of altered direction, or differently localised tension (*Spannung*). We feel a strain forward in the eyes, one directed sideways in the ears, increasing with the degree of our attention, and changing according as we look at an object carefully, or listen to something attentively; wherefore we speak of *straining the attention*. The difference is most plainly felt when the attention vibrates rapidly between eye and ear. This feeling localises itself with most decided difference in regard to the various sense-organs according as we wish to discriminate a thing delicately by touch, taste or smell.

“But now I have, when I try to vividly recall a picture of memory or fancy, a feeling perfectly analogous to that which I experience when I seek to grasp a thing keenly by eye or ear; and this analogous feeling is very differently localised. While in sharpest possible attention to real objects (as well as to after-images) the strain is plainly forwards, and, when the attention changes from one sense to another, only alters its direction between the sense-organs, leaving the rest of the head free from strain, the case is different in memory or fancy; for here the feeling withdraws entirely from the external sense-organs, and seems rather to take refuge in that part of the head which the brain fills. If I wish, for example, to recall a place or person it will arise before me with vividness, not according as I strain my attention forwards, but rather in proportion as I, so to speak, retract it backwards.”<sup>1</sup>

It appears probable that the feelings Fechner describes are in great part constituted by imaginary semi-circular canal sensations.<sup>2</sup> These undoubtedly convey the most delicate perception of change in direction; and when, as here, the changes are not perceived as taking place in the external world, they occupy a vague internal space located within the head.<sup>3</sup>

<sup>1</sup> *Elemente der Psychophysik*, ii. 475-6.

<sup>2</sup> See Foster's *Text-book of Physiology*, bk. iii., c. 6, § 2.

<sup>3</sup> Fechner, who was ignorant of the but lately discovered function of the semi-circular canals, gives a different explanation of the organic seat of these feelings. They are probably highly composite. With me, actual movements in the eyes play a considerable part in them, though I am wholly unconscious of the peculiar feelings in the scalp which Fechner goes on to describe thus: “The feeling of strained attention in the different sense-organs seems to be only a muscular one produced in using these



In the skin itself there is a vague form of projection into the third dimension to which Hering has called attention.<sup>1</sup>

"Heat is not felt only against the cutaneous surface, but when communicated through the air may appear extending more or less out from the surface into the third dimension of surrounding space. . . . We can determine in the dark the place of a radiant body by moving the hand to and fro, and attending to the fluctuation of our feeling of warmth. The feeling itself, however, is not projected fully into the spot at which we localise the hot body, but always remains in the neighbourhood of the hand."

The interior of one's mouth-cavity feels larger when explored by the tongue than when looked at. The crater of a newly-extracted tooth, and the movements of a loose tooth in its socket, feel quite monstrous. A midge buzzing against the drum of the ear will often seem as big as a butterfly. The spatial sensibility of the tympanic membrane has hitherto been very little studied, though the subject will well repay much trouble. If we approach it by introducing into the outer ear some small object like the tip of a rolled-up tissue paper lamplighter, or the end of a wooden toothpick made soft between the teeth, we are surprised at the large radiating sensation which its presence gives us, and at the sense of clearness and openness which comes when it is removed. It is immaterial to inquire whether the far-reaching sensation here be due to actual irradiation upon distant nerves or not. We are considering now, not the objective causes of the spatial feeling, but its subjective varieties, and the experiment shows that the same object gives more of it to the inner than to the outer cuticle of the ear. The tympanic membrane is furthermore able to render sensible differences in the pressure of the external atmosphere, too slight to be felt as noise. If the reader will sit with closed eyes and let a friend approximate some solid

various organs by setting in motion, by a sort of reflex action, the set of muscles which belong to them. One can ask, then, with what particular muscular contraction the sense of strained attention in the effort to recall something is associated? On this question my own feeling gives me a decided answer; it comes to me distinctly not as a sensation of tension in the inside of the head, but as a feeling of strain and contraction in the scalp, with a pressure from outwards in over the whole cranium, undoubtedly caused by a contraction of the muscles of the scalp. This harmonises very well with the expressions, *sich den Kopf zerbrechen*, *den Kopf zusammennehmen*. In a former illness when I could not endure the slightest effort after continuous thought, and had no theoretical bias on this question, the muscles of the scalp, especially those of the back-head, assumed a fairly morbid degree of sensibility whenever I tried to think."<sup>2</sup> (*Elem. der Psychophysik*, ii. 490-91.)

<sup>1</sup> Hermann's *Handb. der Physiologie*, iii. 2, p. 436.

object like a large book, noiselessly to his face, he will immediately become aware of the object's presence and position—likewise of its departure. A friend of the writer, making the experiment for the first time, discriminated unhesitatingly between the three degrees of solidity of a board, a lattice-frame and a sieve, held close to his ear. Now as this sensation is never used by ordinary persons as a means of perception, we may fairly assume that its felt quality, in those whose attention is called to it for the first time, belongs to it *quâ* sensation, and owes nothing to educational suggestions. But this felt quality is most distinctly and unmistakably one of vague spatial vastness in three dimensions—quite as much so as is the felt quality of the retinal sensation when we lie on our back and fill the entire field of vision with the empty blue sky. When an object is brought near the ear we immediately feel shut in, contracted; when the object is removed, we suddenly feel as if a transparency, clearness, openness, had been made outside of us. And the feeling will, by anyone who will take the pains to observe it, be acknowledged to involve the third dimension in a vague, unmeasured state.<sup>1</sup>

The reader will have noticed, in this enumeration of facts, that the voluminousness of the feeling seems to bear very little relation to the size of the organ that yields it. The ear and eye are comparatively minute organs, yet give us feelings of great volume. The same lack of exact proportion between size of feeling and size of organ affected obtains within the limits of particular sensory organs. An object appears smaller on the lateral portions of the retina than it does on the fovea, as may be easily verified by holding the two forefingers parallel and a couple of inches apart, and transferring the gaze of one eye from one to the other. Then the finger not directly looked at will appear to shrink, and this whatever be the direction of the fingers. On the tongue a crumb, or the calibre of a small tube, appears larger than between the fingers. If two points kept equidistant (blunted compass- or scissors-points, for example) be drawn across the skin so as really to describe a pair of parallel lines, the lines will appear farther apart in some spots than in others. If, for example, we draw them horizontally across the face, so that the mouth falls between

<sup>1</sup> That the sensation in question is one of tactile rather than of acoustic sensibility would seem proved by the fact that a medical friend of the writer, both of whose *membranæ tympani* are quite normal, but one of whose ears is almost totally deaf, feels the presence and withdrawal of objects as well at one ear as at the other.

them, the person experimented upon will feel as if they began to diverge near the mouth and to include it in a well-marked ellipse. In like manner, if we keep the compass-points one or two centimetres apart, and draw them down the fore-arm over the wrist and palm, finally drawing one along one finger, the other along its neighbour, the appearance will be that of a single line, soon breaking into two, which become more widely separated about the wrist, to contract again in the palm, and finally diverge rapidly again towards the finger-tips.

The same length of skin moreover will convey a more extensive sensation according to the manner of stimulation. If the edge of a card be pressed against the skin, the distance between its extremities will seem shorter than that between two compass-tips touching the same terminal points.

The skin seems to obey a different law from the eye here. If a given retinal tract be excited, first by a series of points, and next by the two extreme points, with the interval between them unexcited, this interval will seem considerably less in the second case than it seemed in the first. In the skin the unexcited interval feels the larger. The reader may easily verify the facts in this case by taking a visiting card, cutting one edge of it into a saw tooth pattern, and from the opposite edge cutting out all but the two corners, and then comparing the feelings aroused by the two edges when held against the skin.

In the eye, intensity of nerve-stimulation seems to increase the *volume* of the feeling as well as its brilliancy. If we raise and lower the gas alternately, the whole room and all the objects in it seem alternately to enlarge and contract. If we cover half a page of small print with a grey glass, the print seen through the glass appears decidedly smaller than that seen outside of it, and the darker the glass the greater the difference. When a circumscribed opacity in front of the retina keeps off part of the light from the portion which it covers, objects projected on that portion may seem but half as large as when their image falls outside of it.<sup>1</sup> The inverse effect seems produced by certain drugs and anæsthetics. Morphine, atropine, daturine and cold blunt the sensibility of the skin, so that distances upon it seem less. Haschisch produces strange perversions of the general sensibility. Under its influence one's body may seem either enormously enlarged or strangely contracted. Sometimes a single mem-

<sup>1</sup> Classen, *Physiologie des Gesichtssinnes*, p. 114; see also Riehl, *Der Philosophische Kriticismus*, ii., p. 149.

ber will alter its proportion to the rest ; or one's back, for instance, will appear entirely absent, as if one were hollow behind. Objects comparatively near will recede to a vast distance, a short street assume to the eye an immeasurable perspective. Ether and chloroform occasionally produce not wholly dissimilar results. Panum, the German physiologist, relates that, when as a boy he was etherised for neuralgia, the objects in the room grew extremely small and distant, before his field of vision darkened over and the roaring in his ears began. He also mentions that a friend of his in church, struggling in vain to keep awake, saw the preacher grow smaller and smaller and more and more distant. I myself on one occasion observed the same recession of objects during the beginning of chloroformisation. In various cerebral diseases we find analogous disturbances.

In the facts we have thus passed in review hardly anything has been said about position, direction, or anything that could fall under the concept of *localisation*. We have spoken of the mere bigness considered as a unit of each of the several feelings. What the reasons for the particular amount of this extensive muchness may be in each particular case is an interesting and important problem. One factor undoubtedly is the number of nerve-terminations simultaneously excited by the outward agent that awakens the sensation. When many skin-nerves are warmed, or much retinal surface illuminated, our feeling is larger than when a lesser nervous surface is excited. The single sensation yielded by two compass-points, although it seems simple, is yet felt to be much bigger and blunter than that yielded by one. The touch of a single point may always be recognised by its quality of sharpness. This page looks much smaller to the reader if he closes one eye than if both eyes are open. So does the moon, which latter fact shows that the phenomenon has nothing to do with parallax. The celebrated boy couched for the cataract by Cheselden thought, after his first eye was operated, "all things he saw extremely large," but being couched of his second eye, said "that objects at first appeared large to this eye, but not so large as they did at first to the other ; and looking upon the same object with both eyes, he thought it looked about twice as large as with the first couched eye only, but not double, that we can anyways discover".

The greater extensiveness that the feeling of certain parts of the same surface has over other parts, and that one order of surface has over another (retina over skin, for example),

may also to a certain extent be explained by the operation of the same factor. It is an anatomical fact that the most spatially sensitive surfaces (retina, tongue, finger-tips, &c.) are supplied by nerve-trunks of unusual thickness, which must supply to every unit of surface area an unusually large number of terminal fibres. But the variations of felt extension obey probably only a very rough law of numerical proportion to the number of fibres. A sound is not twice as voluminous to two ears as to one; and the above-cited variations of feeling, when the same surface is excited under different conditions, show that the feeling is a resultant of several factors of which the anatomical one is only the principal. Many ingenious hypotheses have been brought forward to assign the co-operating factors where different conditions give conflicting amounts of felt space. Later we shall analyse some of these cases in detail, but it must be confessed here in advance that many of them resist analysis altogether.<sup>1</sup>

<sup>1</sup> It is worth while at this point to call attention with some emphasis to the fact that, though the anatomical condition of the feeling *resembles* the feeling itself, such resemblance cannot be taken by our understanding to explain *why* the feeling should be just what it is. We hear it untiringly reiterated by materialists and spiritualists alike that we can see no possible inward reason why a certain brain-process should produce the feeling of redness and another of anger: the one process is no more red than the other is angry, and the coupling of process and feeling is, as far as our understanding goes, a juxtaposition pure and simple. But in the matter of *spatial* feeling, where the retinal patch that produces a triangle in the mind is itself a triangle, &c., it looks at first sight as if the sensation might be a direct cognition of its own neural condition. Were this true, however, our sensation should be one of *multitude* rather than of continuous extent; for the condition is *number* of optical nerve-termini, and even this is only a remote condition and not an immediate condition. The immediate condition of the feeling is not the process in the retina, but the process in the brain; and the process in the brain may, for aught we know, be as unlike a triangle,—nay, it probably is so,—as it is unlike redness or rage. It is simply a *coincidence* that in the case of space one of the organic conditions, *viz.*, the triangle impressed on the skin or the retina, should lead to a representation in the mind of the subject observed similar to that which it produces in the psychological observer. In no other kind of case is the coincidence found. Even should we admit that we cognise triangles in space because of our immediate cognition of the triangular shape of our excited group of nerve-tips, the matter would hardly be more transparent, for the mystery would still remain, why are we so much better cognisant of triangles on our finger-tips than on the nerve-tips of our back, on our eye than on our ear, and on any of these parts than in our brain? Thos. Brown very rightly rejects the notion of explaining the shape of the space perceived by the shape of the “nervous expansion affected”. “If this alone were necessary, we should have square inches and half inches, and various other forms, rectilinear and curvilinear, of fragrance and sound.” (*Lectures*, xxii.)

So far, all we have established or sought to establish is the existence of the vague form or *quale* of spatiality as an inseparable element bound up with the other qualitative peculiarities of each and every one of our sensations. The numerous examples we have adduced of the variations of this extensive element have only been meant to make clear its strictly sensational character. In very few of them will the reader have been able to explain the variation by an added intellectual element, such as the suggestion of a recollected experience. In almost all it seemed the immediate psychic effect of a peculiar character of nerve-process excited; and all the nerve-processes in question agree in yielding what space they do yield to the mind in the shape of a simple total vastness, in which, *primatively* at least, no order of parts or subdivisions reigns.

Let no one be surprised at this notion of a space without order. There may be a space without order just as there may be an order without space.<sup>1</sup> And the primitive perceptions of space are certainly of an unordered kind. The order which the spaces first perceived potentially include must, before being realised by the mind, be woven into those spaces by a rather complicated set of intellectual acts—first the whole, then the parts. The primordial sensations of largeness which the spaces yield must be *measured and subdivided* by consciousness, and the various original totals of extension *added* together, so as to form by their synthesis what we know as the real Space of the objective world. In these operations, imagination, association, attention and selection play a decisive part; and although they nowhere add any new material to the space-data of sense, they so shuffle and manipulate these data and hide present ones behind imagined ones that it is no wonder if some authors have gone so far as to think that the sense-data have no spatial worth at all, and that the intellect, since it makes the subdivisions, also gives the spatial quality to them out of resources of its own.

To make clear what the problem of finding order, the problem of subdivision and synthesis, is, let us begin by supposing a creature with several sense-organs, each of which yields its own vaguely extensive feeling. (This

<sup>1</sup> Musical tones, *e.g.*, have an order of quality independent either of their space- or time-order. Music comes from the time-order of the notes upsetting their quality-order. In general, if *a b c d e f g h i j k*, &c., stand for an arrangement of feelings in the order of their quality, they may assume *any* space-order or time-order, as *d e f a h g*, &c., and still the order of quality will remain fixed and unchanged.

would probably represent an advanced stage of evolution, for it is likely that in the very earliest dawn of sensibility every impression made awakened the same vague but extensive feeling.) Now, in the creature we have assumed, so long as things do not evolve still farther, there is no reason to suppose that the several sense-spaces of which it may become conscious, each filled with its own peculiar content of feeling, should enter into any definite spatial intercourse with each other, or lie in any particular order of positions. Even in ourselves we can recognise this. Different feelings may coexist in us without assuming any particular spatial order. The sound of the brook near which I write, the odour of the cedars, the comfort with which my breakfast has filled me, and my interest in this paragraph, all lie distinct in my consciousness, but in no sense out-, or alongside, of each other. Their spaces are interfused and at most fill the same vaguely objective world. Even where the qualities are far less disparate, we may have something similar. If we take our subjective and corporeal sensations alone, there are moments when, as we lie or sit motionless, we find it very difficult to feel distinctly the length of our back or the direction of our feet from our shoulders. By a strong effort we can succeed in dispersing our attention impartially over our whole person, and then we feel the real shape of our body in a sort of unitary way. But in general a few parts are strongly emphasised to consciousness and the rest sink out of notice; and it is then remarkable how vague and ambiguous our perception of their relative order of location is. Obviously, for the orderly arrangement of the several sense-spaces in consciousness, something more than their mere separate existence is required. What is this further condition?

*If spatial feelings are to be perceived alongside of each other and in definite order they must appear as parts in a vaster spatial feeling which can enter the mind simply and all at once.* I think it will be seen that the difficulty of estimating correctly the form of one's body by pure feeling arises from the fact that it is very hard to feel its totality as a unit at all. The trouble is similar to that of thinking forwards and backwards simultaneously. When conscious of our head we tend to grow unconscious of our feet, and there enters thus an element of time-succession into our perception of ourselves which transforms the latter from an act of intuition to one of construction. This element of constructiveness is present in a still higher degree, and carries with it the same consequences, when we deal with objective spaces too great to be



grasped by a single look. The relative positions of the shops in a town, separated by many tortuous streets, have to be thus constructed from data apprehended in succession, and the result is a greater or less degree of vagueness.

That a sensation *be discriminated as a part* from out of a larger enveloping space is then the *conditio sine quâ non* of its being apprehended in a definite spatial order. The problem of ordering our feelings in space is then, in the first instance, a problem of discrimination, but not of discrimination pure and simple; for then not only coexistent sights but coexistent sounds would necessarily assume such order, which they notoriously do not. Whatever is discriminated will appear as a small space within a larger space, it is true, but this is but the very rudiment of order. For the location of it within that space to become precise, other conditions still must supervene; and the best way to study what they are will be to pause for a little and analyse what the expression "spatial order" means.

## 2. *Space-relations.*

Spatial order is an abstract term. The concrete perceptions which it covers are figures, directions, positions, magnitudes and distances. To single out any one of these things from a total vastness is partially to introduce order into the vastness. To subdivide the vastness into a multitude of these things is to apprehend it in a completely orderly way. Now what are these things severally? To begin with, no one can for an instant hesitate to say that some of them are qualities of sensation, just as the total vastness is in which they lie. Take figure: a square, a circle and a triangle appear in the first instance to the eye simply as three different kinds of impressions, each so peculiar that we should recognise it if it were to return. When Nunnely's patient had his cataracts removed, and a cube and a sphere were presented to his notice, he could at once perceive a difference in their shapes; and though he could not say which was the cube and which the sphere, he saw they were not of the same figure. So of lines: if we can notice lines at all in our field of vision, it is inconceivable that a vertical one should not affect us differently from an horizontal one, and should not be recognised as affecting us similarly when presented again, although we might not yet know the name 'vertical,' or any of its connotations, beyond this peculiar affection of our sensibility. So of angles: an obtuse one affects our feeling immediately in a different way



from an acute one. Distance-apart, too, is a simple sensation—the sensation of a line joining the two distant points: lengthen the line, you alter the feeling and with it the distance felt.

But with distance and direction we pass to the category of *space-relations*, and are immediately confronted by an opinion which makes of all relations something *toto celo* different from all facts of feeling or imagination whatsoever. A relation, for the Platonising school in psychology, is an energy of pure thought, and as such quite incommensurable with the data of sensibility between which it may be perceived to obtain.

We may consequently imagine a disciple of this school to say to us at this point: "Suppose you *have* made a separate specific sensation of each line and each angle, what boots it? You have still the order of directions and of distances to account for; you have still the relative magnitudes of all these felt figures to state; you have their respective positions to define before you can be said to have brought order into your space. And not one of these determinations can be effected except through an act of relating thought, so that your attempt to give an account of space in terms of pure sensibility breaks down almost at the very outset. *Position*, for example, can never be a sensation, for it has nothing intrinsic about it; it can only obtain between a spot, line or other figure and extraneous co-ordinates, and can never be an element of the feeling of the sensible datum, the line or the spot, in itself. Let us then confess that thought alone can unlock the riddle of space, and that Thought is an adorable but unfathomable mystery."

Such a method of dealing with the problem has the merit of shortness. But let *us* be in no such hurry, but see whether we cannot get a little deeper, by patiently considering what these space-relations are.

'Relation' is a very slippery word. It has so many different concrete meanings that the use of it as an abstract universal may easily introduce bewilderment into our thought. We must therefore be careful to avoid ambiguity by making sure, wherever we have to employ it, what its precise meaning is in that particular sphere of application. At present we have to do with space-relations, and no others. Most 'relations' are feelings of an entirely different order from the terms they relate. The relation of similarity, *e.g.*, may equally obtain between jasmine and tuberose, or between Mr. Browning's verses and Mr. Story's; it is itself neither odorous nor poetical, and those may well be pardoned who have

denied to it all sensational content whatever. But just as, in the field of quantity, the relation between two numbers is another number, so in the field of space *the relations are facts of the same order with the facts they relate*. If these latter be patches in the circle of vision, the former are certain other patches between them. When we speak of the relation of direction of two points towards each other, we mean simply the sensation of the line that joins the two points together. The line *is* the relation; feel it and you feel the relation, see it and you see the relation; nor can you in any conceivable way think the latter except by imagining the former (however vaguely), or describe or indicate the one except by pointing to the other. And the moment you have imagined or pointed out the line, the relation stands before you, or your interlocutor, in all its completeness, with nothing further to be done. Just so the relation of direction between two lines is identical with the peculiar sensation of shape of the space enclosed between them. This is commonly called an angular relation.

If these relations are sensations, no less so are the relations of position. The relation of position between the top and bottom points of a vertical line *is* that line, and nothing else. The relations of position between a point and a horizontal line below it are potentially numerous. There is one more important than the rest, called its distance. This is the sensation, ideal or actual, of a perpendicular drawn from the point to the line.<sup>1</sup> Two lines, one from each extremity of the horizontal to the point, give us a peculiar sensation of triangularity. This feeling may be said to constitute the *locus* of all the relations of position of the elements in question. Rightness and leftness, upness and downness, are again pure sensations differing specifically from each other, and generically from everything else. If we take a cube and label one side *top*, another *bottom*, a third *front*, and a fourth *back*, there remains no form of words by which we can *describe* to another person which of the remaining sides is *right* and which *left*. We can only point and say *here* is right and *there* is left, just as we should say *this* is red and *that* blue, without being able to give an idea of them in words. Of two points seen beside each other at all, one is always affected by one of these feelings, and the other by the opposite; the same is true of the extremities of any line.<sup>2</sup>

<sup>1</sup> The whole science of geometry may be said to owe its being to the exorbitant interest the human mind takes in *lines*. We cut space up in every direction in order to manufacture them.

<sup>2</sup> Kant was, I believe, the first to call attention to this order of facts. Cp. *Prolegomena*, § 12.

Thus it appears indubitable that all space-relations except those of magnitude are nothing more or less than pure sensational elements. But *magnitude* appears to outstep this narrow sphere. We have relations of muchness and littleness between times, numbers, intensities and qualities, as well as spaces. It is impossible then that such relations should form a particular kind of simply spatial feeling. This we must admit: the relation of quantity is generic and occurs in many categories of consciousness, whilst the other relations we have considered are specific and occur in space alone. When our attention passes from a shorter line to a longer, from a smaller spot to a larger, from a feeblar light to a stronger, from a paler blue to a richer, from a march tune to a galop, the transition is accompanied in the synthetic field of consciousness by a peculiar feeling of difference which is what we call the sensation of *more*,—more length, more expanse, more light, more blue, more motion. This transitional sensation of *more* must be identical with itself under all these different accompaniments, or we should not give it the same name in every case. We get it when we pass from a short vertical line to a long horizontal one, from a small square to a large circle, as well as when we pass between those figures whose shapes are congruous. But when the shapes are congruous our consciousness of the relation is a good deal more distinct, and it is most distinct of all when, in the exercise of our analytic attention, we notice, first, a *part*, and then the *whole*, of a *single* line or shape. Then the *more* of the whole actually sticks out, as a separate piece of space, and is so envisaged. The same exact sensation of it is given when we are able to superpose one line or figure on another. This condition *sine quâ non* of exact measurement of the *more* has led some to think that the feeling itself arose in every case from original experiences of superposition. This is probably not an absolutely true opinion, but for our present purpose that is immaterial. So far as the subdivisions of a sense-space are to be *measured* exactly against each other, objective forms occupying one subdivision must directly or indirectly be superposed upon the other, and the mind must get the immediate feeling of an outstanding *plus*. And even where we only feel one subdivision to be vaguely larger or less, the mind must pass rapidly between it and the other subdivision and receive the immediate sensible shock of the *more*.

We seem thus to have accounted for all space-relations, and made them clear to our understanding. They are nothing but sensations of particular lines, particular angles,

particular forms of transition, or, in the case of a *distinct more*, of particular outstanding portions of space after two figures have been superposed. These relation-sensations may actually be produced as such, as when a geometer draws new lines across a figure with his pencil to demonstrate the relations of its parts, or they may be ideal representations of lines &c. not really drawn. But in either case their entrance into the mind is equivalent to a more detailed subdivision, cognisance and measurement of the space considered. The *bringing of subdivisions to consciousness* constitutes then the entire process by which we pass from our first vague feeling of a total vastness to a cognition of the vastness in detail. The more numerous the subdivisions are, the more elaborate and perfect the cognition becomes. But inasmuch as all the subdivisions are themselves sensations, and even the feeling of "more" or "less" is, where not itself a figure, at least a sensation of transition between two sensations of figure, it follows, for aught we can as yet see to the contrary, that all spatial knowledge is sensational at bottom, and that, as the sensations lie together in the unity of consciousness, no new material element whatever comes to them from a supra-sensible source.<sup>1</sup>

*The bringing of subdivisions to consciousness!* This then is our next topic. They may be brought to consciousness under three aspects, in respect of their *locality*, in respect of their *size*, in respect of their *shape*.

In the eyes of many it will have seemed strange to call a relation a mere line, and a line a mere sensation. We may easily learn a great deal *about* any relation, say that between two points : we may divide the line which joins these, and distinguish it, and classify it, and find out *its* relations by drawing or representing new lines, and so on. But all this further industry has naught to do with our *acquaintance* with the relation itself, in its first intention. So cognised, the relation *is* the line and nothing more. It would indeed be fair to call it something less ; and in fact it is easy to understand how most of us come to feel as if the line were a much grosser thing than the relation. The line is broad or narrow, blue or red, made by this object or by that alternately, in the course of our experience ; it is independent of any of these accidents ; and so, from viewing it as no one of *such* sensible qualities, we may end by thinking of it as something which cannot be defined, except as the negation of all sensible quality whatever, and which needs to be put *into* the sensations by a mysterious act of 'relating thought'.

Another reason why we get to feel as if a space-relation must be something other than the mere feeling of a line or angle, is that between two positions we can potentially make any number of lines and angles, or find, to suit our purposes, endlessly numerous relations. The sense of this indefinite potentiality cleaves to our words when we speak in a general way of 'relations of place,' and misleads us into supposing that not even any single one of them can be exhaustively equated by a single angle or a single line.

Let us take the problem of Locality first, and begin with the simple case of a sensitive surface, only two points of which happen to be recipients of stimulation from without. How, first, are these two points felt as alongside of each other with an interval of space between them? We must be conscious of two things for this: of the duality of the excited points, and of the extensiveness of the unexcited interval. The duality alone, although a necessary, is not a sufficient condition of the spatial separation. We may, for instance, discern two sounds in the same place, sweet and sour in the same lemonade, warm and cold, round and pointed contact in the same place on the skin, &c.<sup>1</sup> In all discrimination the recognition of the duality of two feelings by the mind is the easier the more strongly the feelings are contrasted in quality. If our two excited points awaken identical qualities of sensation, they must, perforce, appear to the mind as one; and, not distinguished at all, they are, *a fortiori*, not localised apart. Spots four centimetres distant on the back have no qualitative contrast at all, and fuse into a single sensation. Points less than three-thousandths of a millimetre apart awaken on the retina sensations so contrasted that we apprehend them immediately as two. Now these unlikenesses which arise so slowly when we pass from one point to another in the back, so much faster on the tongue and finger-tips, but with such inconceivable rapidity on the retina, what are they? Can we discover anything about their intrinsic nature?

The most natural and immediate answer to make is that they are unlikeness of *place* pure and simple. In the words of a German physiologist,<sup>2</sup> to whom psychophysics owes much: "The sensations are from the outset (*von vornherein*) localised. . . . Every sensation as such is from the very beginning affected with the spatial quality, so that this quality is nothing like an external attribute coming to the sensation from a higher faculty, but must be regarded as something immanently residing in the sensation itself."

And yet the moment we reflect on this answer an insuperable logical difficulty seems to present itself. No single *qualé* of sensation can, by itself, amount to a consciousness of *position*. Suppose no feeling but that of a single one of the points ever to be awakened. Could that possibly be the

<sup>1</sup> This often happens when the warm and cold points, or the round and pointed ones, are applied to the skin within the limits of a single "Empfindungskreis".

<sup>2</sup> Vierordt, *Grundriss der Physiologie*, 5te Auflage, 1877, pp. 326, 436.

feeling of any special *whereness* or *thereness*? Certainly not. Only when a second sentient point arises can the first acquire a determination of up, down, right or left, and these determinations are with respect to that second point. Each point, so far as it is a *placed*, is then only by virtue of what it is *not*, namely, another point. This is as much as to say that position has nothing *intrinsic* about it; and that, although a feeling of bigness may, a feeling of *place* cannot, possibly form an *immanent* element in any single separate sensation. The very writer we have quoted has given heed to this objection, for he continues (p. 335) by saying that the sensations thus originally localised, "are only so *in themselves*, but not in the representation of consciousness, which is not yet present. . . . They are, in the first instance, devoid of all mutual relations with each other." But such a localisation of the sensation "in itself" would seem to mean nothing more than the susceptibility or *potentiality* of being distinctly localised when the time came and other conditions became fulfilled. Can we now discover anything about such susceptibility in itself before it has borne its ulterior fruits in the developed consciousness?

To begin with, every sensation of the skin and every visceral sensation seems to derive from its topographic seat a peculiar shade of feeling, which it would not have in another place. And this feeling *per se* seems quite another thing from the perception of the place. Says Wundt<sup>1</sup> :—

"If with the finger we touch first the cheek and then the palm, exerting each time precisely the same pressure, the sensation shows notwithstanding a distinctly marked difference in the two cases. Similarly, when we compare the palm with the back of the hand, the nape of the neck with its anterior surface, the breast with the back; in short, any two distant parts of the skin with each other. And moreover, we easily remark, by attentively observing, that spots even tolerably close together differ in respect of the quality of their feeling. If we pass from one point of our cutaneous surface to another, we find a perfectly gradual and continuous alteration in our feeling, notwithstanding the objective nature of the contact has remained the same. Even the sensations of corresponding points on opposite sides of the body, though similar, are not identical. If, for instance, we touch first the back of one hand, and then of the other, we remark a qualitative unlikeness of sensation. It must not be thought that such differences are mere matters of imagination, and that we take the sensations to be different because we represent each of them to ourselves as occupying a different place. With sufficient sharpening of the attention, we may, confining ourselves to the quality of the feelings alone, entirely abstract from their locality, and yet notice the differences quite as markedly."

Whether these local contrasts shade into each other with absolutely continuous gradations, we cannot say. But we know (continues Wundt)

<sup>1</sup> *Vorles. ü. Menschen- u. Thierseele*, Leip., 1863, i. 214.

that "they change, when we pass from one point of the skin to its neighbour, with very different degrees of rapidity. On delicately feeling parts, used principally for touching, such as the finger-tips, the difference of sensation between two closely approximate points is already strongly pronounced; whilst in parts of lesser delicacy, as the arm, the back, the legs, the disparities of sensation are observable only between distant spots."

The internal organs, too, have their specific *qualia* of sensation. An inflammation of the kidney is different from one of the liver; pains in joints and muscular insertions are distinguished. Pain in the dental nerves is wholly unlike the pain of a burn. But very important and curious similarities prevail throughout these differences. Internal pains, whose seat we cannot see, and have no means of knowing unless the character of the pain itself reveal it, are felt by us *where* they belong. Diseases of the stomach, kidney, liver, rectum, prostate, &c., of the bones, of the brain and its membranes, are referred to their proper position. Nerve pains describe the length of the nerve. Such localisations as those of vertical, frontal or occipital headache of intracranial origin, force us to conclude that parts which are neighbours, whether inner or outer, may possess by mere virtue of that fact a common peculiarity of feeling, a respect in which their sensations agree, and which serves as a token of their proximity. These *local* colourings are, moreover, so strong that we cognise them as the same, throughout all contrasts of sensible quality in the accompanying perception. Cold and heat are wide as the poles asunder; yet if both fall on the cheek, there mixes with them something that makes them in *that respect* identical, just as, contrariwise, despite the identity of cold with itself wherever found, when we get it first on the palm and then on the cheek, some difference comes, which keeps the two experiences for ever asunder.<sup>1</sup>

<sup>1</sup> Of the anatomical and physiological conditions of these facts we know as yet but little, and that little need not here be discussed. Some differences there must be, either in the composition of the nerve-tissue or in the manner in which, in different places, it is affected by the tissues in contact with it when they themselves are touched. These latter mechanical conditions cannot however obtain in the case of the retina, the different points of which exhibit nevertheless a wonderfully delicately graded system of sensations dependent on locality alone. Two principal hypotheses have been invoked in the case of the retina. Wundt (*Menschen- u. Thierseele*, i. 214) called attention to the changes of colour-sensibility which the retina displays as the image of the coloured object passes from the fovea to the periphery. The colour alters and becomes darker, and the change is more rapid in certain directions than in others. This alteration in general, however, is one of which, *as such*, we are wholly unconscious. We see the sky as bright blue all over, the modifications of the blue sensation being inter-



And now let us revert to the query propounded a moment since : Can these differences of mere quality in feeling, varying according to locality yet having each sensibly and intrinsically and by itself nothing to do with position, constitute the 'susceptibilities' we mentioned, the *conditions* of being perceived in position, of the localities to which they belong? The numbers on a row of houses, the initial letters of a set of words, have no intrinsic kinship with points of space, and yet they are the conditions of our knowledge where any house is in the row, or any word in the dictionary. Can the modifications of feeling in question be tags or labels of this kind which in no wise originally reveal the position of the spot to which they are attached, but guide us to it by what Berkeley would call a "customary tie"? Many authors have unhesitatingly replied in the affirmative. Lotze, who in his *Medizinische Psychologie*,<sup>1</sup> first described the sensations in this way, designated them, thus conceived, as *local-signs*. This term has obtained wide currency in Germany, and in speaking of the 'Local-sign theory' hereafter, I shall always mean the theory which denies that there can be in a sensation any element of *actual* locality, of *inherent* spatial order, any tone as it were which cries to us immediately and without further ado, 'I am *here*,' or 'I am *there*'.

If, as may well be the case, we by this time find ourselves tempted to accept the Local-sign theory in a general way, we have to clear up several farther matters. If a sign is to lead us to *the thing* it means, we must have some other source of knowledge of that thing. Either the thing has been given in a previous experience of which the sign also formed part—they are *associated*; or it is what Reid calls a 'natural'

preted by us, not as differences in the objective colour, but as distinctions in its locality. Lotze (*Medizinische Psychologie*, 333, 355), on the other hand, has pointed out the peculiar tendency which each particular point of the retina has to call forth that movement of the eye-ball which will carry the image of the exciting object from the point in question to the *fovea*. With each separate tendency to movement (as with each actual movement) we may suppose a peculiar modification of sensibility to be conjoined. This modification would constitute the peculiar local tinging of the image by each point. See also Sully's *Psychology*, pp. 118-121. Prof. B. Erdman has quite lately (*Vierteljahrsschrift f. wiss. Phil.*, x. 324-9) denied the existence of all evidence for such immanent *qualia* of feeling characterising each locality. Acute as his remarks are, they quite fail to convince me. On the skin the *qualia* are evident, I should say. Where, as on the retina, they are less so (Kries and Auerbach), this may well be a mere difficulty of discrimination not yet educated to the analysis.

<sup>1</sup> 1852, p. 331.



sign, that is, a feeling which, the first time it enters the mind, evokes from the native powers thereof a cognition of the thing that hitherto had lain dormant. In both cases, however, the sign is one thing, and the thing another. In the instance that now concerns us, the sign is a quality of feeling and the thing is a position. Now we have seen that the position of a point is not only revealed, but created, by the presence of other external points to which it stands in determinate *relations*. If the sign can by any machinery which it sets in motion evoke a consciousness either of the other points, or of the relations, or of both, it would seem to fulfil its function, and reveal to us the position we seek.

But such a machinery is already familiar to us. It is neither more nor less than the law of habit in the nervous system. When any point of the sensitive surface has been frequently excited simultaneously with, or immediately before or after other points, and afterwards comes to be excited alone, there will be a tendency for its perceptive nerve-centre to irradiate into the nerve-centres of the other points. Subjectively considered, this is the same as if we said that the local-sign, the peculiar feeling, of the first point, when aroused, will *suggest* the feeling of the entire region with whose stimulation its own excitement has been habitually *associated*.

Take the case of the stomach. When the epigastrium is heavily pressed, when certain muscles contract, &c., the stomach is squeezed, and its peculiar local-sign awakes in consciousness simultaneously with the local-signs of the other squeezed parts. There is also a sensation of total vastness aroused by the combined irritation, and *somewhere* in this the stomach-feeling seems to lie. Suppose that later a pain arises in the stomach from some non-mechanical cause. It will be tinged by the gastric local-sign, and the nerve-centre supporting this latter feeling will excite the centre supporting the dermal and muscular feelings habitually associated with it when the excitement was mechanical. From the combination the same peculiar vastness will again arise. In a word, 'something' in the stomach-sensation will 'remind' us of a total space of which the diaphragmatic and epigastric sensations also form a part, or, to express it more briefly still, will suggest the neighbourhood of these latter organs.<sup>1</sup>

<sup>1</sup> Maybe the localisation of intracranial pain is itself due to such association as this of local-signs with each other, rather than to their qualitative similarity in neighbouring parts (*supra*, p. 19); though it is con-

Revert to the case of two excited points on a surface with an unexcited space between them. The general result of previous experience has been that when either point was impressed by an outward object, the same object also touched the immediately neighbouring parts. Each point has thus its own local-sign associated with those of a circle of surrounding points, the association fading in strength as the circle grows larger. Each will revive its own circle; but when both are excited together, the strongest revival will be that due to the *combined* irradiation. Now the tract *joining the two excited points* is the only part common to the two circles. And the feelings of this whole tract will therefore awaken with considerable vividness in the imagination when its extremities are touched by an outward irritant. The mind receives the impression of two distinct points, joined by an ideal line. The twoness of the points comes from the contrast of their local-signs: the line from the associations into which experience has wrought these latter. If no ideal line arises we have duality without sense of interval; if the line be excited actually rather than ideally, we have the interval given with its ends, in the form of a single extended feeling. E. H. Weber, in the famous article in which he laid the foundations of all our accurate knowledge of these subjects, laid it down as the logical requisite for the perception of two separated points, that the mind should, along with its consciousness of them, become aware of an unexcited interval as such. I have only tried to show how the known laws of experience may cause this requisite to be fulfilled. Of course, if the local signs of the entire region offer but little qualitative contrast *inter se*, the line suggested will be but dimly defined or discriminated in length or direction from other possible lines in its neighbourhood. This is what happens in the back, where consciousness can sunder two spots, whilst only vaguely apprehending their distance and direction apart.

The relation of position of the two points *is* the suggested line. Turn now to the simplest case, that of a single

ceivable that association and similarity itself should here have one and the same neural basis. If we suppose the sensory nerves from those parts of the body beneath any patch of skin to terminate in the same sensorial brain-tract as those from the skin itself, and if the excitement of any one fibre tends to irradiate through the whole of that tract, the feelings of all fibres going to that tract would presumably both have a similar intrinsic quality, and at the same time tend each to arouse the other. Since the same nerve-trunk in most cases supplies the skin and the parts beneath, the anatomical hypothesis presents nothing improbable.

excited spot. How can *it* suggest its position? Not by recalling any particular line unless experience have constantly been in the habit of marking or tracing some one line from it towards some one neighbouring point. Now on the back, belly, viscera, &c., no such tracing habitually occurs. The consequence is that the only suggestion is that of the whole neighbouring circle, *i.e.*, the spot simply recalls the general region in which it happens to lie. By a process of successive construction, it is quite true that we can also get the feeling of distance between the spot and some other particular spot. Attention, by reinforcing the local-sign of one part of the circle, can awaken a new circle round this part, and so *de proche en proche* we may slide our feeling down from our cheek say to our foot. But when we first touched our cheek we had no consciousness of the foot at all.<sup>1</sup> In the extremities, the lips, the tongue and other mobile parts, the case is different. We there have an instinctive tendency, when a part of lesser discriminative sensibility is touched, to move the member so that the touching object glides along it to the place where sensibility is greatest. If a body touches our hand we move the hand over it till the finger-tips are able to explore it. If the sole of our foot touches anything we bring it towards the toes, and so forth. There thus arise lines of habitual passage from all points of a member to its sensitive tip. These are the lines most readily recalled when any point is touched, and their recall is identical with the consciousness of the distance of the touched point from the 'tip'. I think anyone must be aware when he touches a point of his hand or wrist that it is the relation to the finger-tips of which he is usually most conscious. Points on the fore-arm suggest either the finger-tips or the elbow (the latter being a spot of greater sensibility).<sup>2</sup> In the foot it is the toes, and so on. A point can only be cognised in its relations to the entire body at once by awakening a *visual*

<sup>1</sup> Unless, indeed, the foot happen to be spontaneously tingling or something of the sort at the moment. The whole surface of the body is always in a state of semi-conscious irritation which needs only the emphasis of attention, or of some accidental inward irritation, to become strong at any point.

<sup>2</sup> It is true that the inside of the fore-arm, though its discriminative sensibility is often less than that of the outside, usually rises very prominently into consciousness when the latter is touched. Its *aesthetic* sensibility to contact is a good deal finer. We enjoy stroking it from the extensor to the flexor surface around the ulnar side more than in the reverse direction. Pronating movements give rise to contacts in this order, and are frequently indulged in when the back of the fore-arm feels an object against it.

image of the whole body. Such awakening is even more obviously than the previously considered cases a matter of pure association.

This leads us to the eye. On the retina the fovea and the yellow spot about it form a focus of exquisite sensibility, towards which every impression falling on an outlying portion of the field is moved by an instinctive action of the muscles of the eyeball. Few persons, until their attention is called to the fact, are aware how almost impossible it is to keep a conspicuous visible object in the margin of the field of view. The moment volition is relaxed we find that without our knowing it our eyes have turned so as to bring it to the centre. This is why most persons are unable to keep the eyes steadily converged upon a point in space with nothing in it. The objects against the walls of the room invincibly attract the fovea to themselves. If we contemplate a blank wall or sheet of paper, we always observe in a moment that we are directly looking at some speck upon it which, unnoticed at first, ended by 'catching our eye'. Thus whenever an image falling on the point *P* of the retina excites attention, it more habitually moves from that point towards the fovea than in any one other direction. The line traced by this motion is not always a straight line. When the direction of the point from the fovea is neither vertical nor horizontal but oblique, the line traced is often a curve, with its concavity directed upwards if the direction is upwards, downwards if the direction is downwards. This may be verified by anyone who will take the trouble to make a simple experiment with a luminous body like a candle-flame in a dark enclosure, or a star. Gazing first at some point remote from the source of light, let the eye be suddenly turned full upon the latter. The luminous image will necessarily fall in succession upon a continuous series of points, reaching from the one first affected to the fovea. But by virtue of the slowness with which retinal excitements die away, the entire series of points will for an instant be visible as an after-image, displaying the above peculiarity of form according to its situation.<sup>1</sup> These radiating lines are neither regular nor invariable in the same person, nor, probably, equally curved in different individuals. We are incessantly drawing them between the fovea and every point of the field of view. Objects remain in their peripheral indistinctness only so long as they are unnoticed.

<sup>1</sup> These facts were first noticed by Wundt ; see his *Beiträge*, p. 140, 202. See also Lamansky, *Plüger's Archiv*, xi. 418.

The moment we attend to them they grow distinct through one of these motions—which leads to the idea prevalent among uninstructed persons that we see distinctly all parts of the field of view at once. The result of this incessant tracing of radii is that whenever a local-sign *P* is awakened by a spot of light falling upon it, it recalls forthwith, even though the eyeball be unmoved, the local-signs of all the other points which lie between *P* and the fovea. It recalls them in imaginary form, just as the normal reflex movement would recall them in vivid form; and with their recall is given a consciousness more or less faint of the whole line on which they lie. In other words, no ray of light can fall on any retinal spot without the local-sign of that spot revealing to us, by recalling the line of its most habitual associates, its direction and distance from the centre of the field. The fovea acts thus as the origin of a system of polar co-ordinates, in relation to which each and every retinal point has through an incessantly repeated process of association its distance and direction determined. Were *P* alone illumined and all the rest of the field dark we should still, even with motionless eyes, know whether *P* lay high or low, right or left, through the *ideal streak*, different from all other streaks, which *P* alone has the power of awakening.<sup>1</sup>

So far all has been plain sailing, but now our course begins to be tortuous. When *P* recalls an ideal line leading to the fovea the line is felt in its entirety and but vaguely; whilst *P*, which we supposed to be a single star of actual light, stands out in strong distinction from it. The ground of the distinction between *P* and the ideal line which it terminates is manifest—*P* being vivid while the line is faint; but why should *P* hold the particular position it does, at the *end* of the line, rather than anywhere else—for example, in its middle? That seems something not at all manifest.

<sup>1</sup> Notice that all these tracing motions, as we describe them, are supposed to awaken sensibility by the lines they draw on the *sensitive surfaces*, by moving these over objective points, lines which for an instant are felt through their whole extent. They are not supposed to be perceived by the muscular organs, as so much space moved through, along which the surface-sensations are distributed like beads upon a string. We shall later see reason to think that all the muscular sensations have a certain largeness; they never can give rise in the mind to anything as distinct as the feeling of a *line*, with its direction and length. Only a *sensitive surface* is competent to that. Most English psychologists, however, assume that when muscles contract their sensation is that of the line traversed by the extremity which they move. Undoubtedly muscular contractions do break space up for us into lines; they dissect it in a way impossible without their aid, but only because they *draw* lines for us upon our sensitive surfaces.

To clear up our thoughts about this latter mystery, let us take the case of an actual line of light, none of whose parts are ideal. The feeling of the line is produced, as we know, when a multitude of retinal points are excited together, each of which *when excited separately* would give rise to *one* of the feelings called local-signs. Each of these signs is the feeling of a small space. From their simultaneous arousal we might well suppose a feeling of larger space to result. But why should it be necessary that *in* this larger spaciousness each local-sign (or whatever other feeling now in the aggregate excitement corresponds to the local-sign) should appear out- and along-side of its neighbour in a strictly determinate position which it never abandons? Why should the sign *a* be always at one end of the line, *z* at the other, and *m* in the middle? For though the line be a unitary streak of light, its several constituent points can nevertheless break out from it, and become alive, each for itself, under the selective eye of attention.

The uncritical reader, giving his first careless glance at the subject, will say that there is no mystery in this, and that "of course" local-signs must appear alongside of each other, each in its own place;—there is no other way possible. But the more philosophic student, whose business it is to discover difficulties quite as much as to get rid of them, will reflect that it is conceivable that the partial factors might fuse into a larger space, within whose bulk each should be discriminated just as we discriminate a single voice in a chorus, not by its position but rather by its quality.<sup>1</sup> He will wonder why, after combining into the line, the points *can* become severally alive again: the separate puffs of a siren no longer strike the ear after they have fused into a certain pitch of sound. He will recall the fact that when, after looking at things with one eye closed, we double the number of retinal points affected by opening the other eye, the new retinal sensations do not as a rule appear *alongside* of the old ones and additional to them, but merely make the old ones seem larger and nearer. Why should the affection of new points on the *same* retina have so different a result? In fact he will see no sort of logical connexion between (1) the original separate local-signs, (2) the line as a unit, (3) the line with the points discriminated in it, and (4) the various nerve-processes which subserve all these different things. He will suspect our

<sup>1</sup> Remember the definition of local-sign (p. 21) as a mere "intensive" quality of feeling, which, *only in combination with other feelings, produces a feeling of space-relation.*

local-sign of being a very slippery and ambiguous sort of creature. Positionless at first, it no sooner appears in the midst of a gang of companions than it is found maintaining the strictest position of its own, and assigning place to each of its associates. How is this possible? Must we accept what we rejected a while ago as absurd, and admit the points each to have position *in se*?<sup>1</sup> Or must we suspect that our whole construction has been fallacious, and that we have tried to conjure up out of association qualities which the associates never contained?

There is no doubt a real difficulty here; and the shortest way of dealing with it would be to confess it insoluble and ultimate. Even if position be not an intrinsic character of any one of those sensations we have called local-signs, we must still admit that there is *something about* everyone of them that stands for the potentiality of position, and is the *ground* why the local-sign, when it gets placed at all, gets placed *here* rather than *there*. If this 'something' be interpreted as a physiological something, as the nerve-process that underlies the production of the feeling, it is easy to say

<sup>1</sup> How strong the temptation to admit this may become is well seen in the following quotation from Stumpf's *Psychologischer Ursprung der Raumvorstellung* (p. 121), a work which seems to me to give on the whole the most philosophical account of the subject yet published. Stumpf says: "We hold a sheet of paper before us and ask: Can different positions be distinguished, in and of themselves, when of precisely the same colour? They can, without doubt, and indeed in the same way and in the same sense in which two colours can be distinguished one from the other. It makes a difference in our experience, we notice, whether red is presented in this place or the other, just as it makes a difference whether green or red is offered. We recognise in both cases by simply looking at them that we have before us different species of the same genus. Red and green are both colours, but *different* colours as our sight assures us. Here and There in the field of vision are both positions, but *different* positions, as again our sight proves to us. Here, There, In that place, are specified differences of place, as green, red, blue, are of colour. So then separate positions are plainly distinguished as such in representation. Indeed they are so very distinct that identity never occurs between them (we cannot imagine two positions the same), and the same colours can be recognised as two only through the difference of their positions. To depict this difference I am naturally unable, for it is no qualitative difference; but notwithstanding that it is a real difference and can be *felt*. I can moreover as little *define* it as I can that of the two colours (as sensations namely, not ethereal vibrations). But I can *point it out*, and upon him who does not know it, or denies it, force conviction. In short, then, what is the meaning of 'Two things are different in representation,' other than 'They can as such be distinguished, belong to a particular class of distinguishable contents'? I know not in what other sense we can talk of the difference of colours. This criterion however is just as applicable to positions; nor do I know how difference of colours is distinguished from difference of positions." See also pp. 143-153.



in a blank way that, when it is excited alone, it is an 'ultimate fact' (1) that the separate feeling of positionless spot will result; that when it is excited together with other similar processes, but *without* the process of discriminative attention, it is another 'ultimate fact' (2) that the feeling of unitary line will come; and that the final 'ultimate fact' (3) is that, when the nerve-process is excited *in combination with* that other process which subserves the feeling of attention, what results will be the line with the local-sign inside of it determined to a particular place. Thus we should escape the responsibility of explaining, by falling back on the confessed inscrutability of the psycho-neural nexus in all cases. The moment we call the ground of localisation physiological, we need only point out *how*, in those cases in which localisation occurs, the physiological process *differs* from those in which it does not, to have done all we can possibly do in the matter. This would be unexceptionable logic, and with it we might let the matter drop, satisfied that there was no self-contradiction in it, but only the universal psychological puzzle of how a new mode of consciousness emerges whenever a fundamentally new mode of nervous action occurs.<sup>1</sup>

But, blameless as such tactics would logically be on our part, let us see whether we cannot push our theoretic insight a little farther. It seems to me we can. We cannot, it is true, give a reason why the line we feel when process (2) awakens should have its own peculiar shape; nor can we explain the essence of the process of discriminative attention. But we can see why, if the brute facts be admitted that a line may have one of its parts singled out by attention at all, and that that part may appear in relation to other parts at all, the relation must be *in the line itself*,—for the line and the parts are the only things supposed to be in consciousness. And we can furthermore suggest a reason why parts appearing thus in relation to each other in a line should fall into an immutable order, and each within that order keep its characteristic place.

If a lot of such local-signs all have any quality which evenly augments as we pass from one to the other, we can arrange them in an ideal serial order, in which any one local-sign must lie below those with more, above those with less,

<sup>1</sup> The reader will please remember that when we began to give our account of the matter, we said nothing of association, which is a psychic law, but spoke only of the "law of habit in the nervous system". This might easily bring it about, that a point, positionless through nerve-process (1), should appear embedded in a line through nerve-process (2), and finally should start out from a particular part of that line through nerve-process (3).



of the quality in question. It must divide the series into two parts,—unless indeed it have a maximum or minimum of the quality, when it either begins or ends it.

Such an ideal series of local-signs in the mind is, however, not yet identical with the feeling of a line in space. Touch a dozen points on the skin *successively*, and there seems no necessary reason why the notion of a definite line should emerge, even though we be strongly aware of a gradation of quality among the touches. We may of course symbolically arrange them in a line in our thought, but we can always distinguish between a line symbolically thought and a line directly felt.

But note now the peculiarity of the nerve-processes of all these local-signs: though they may give no line when excited *successively*, when excited *together* they do give the actual sensation of a line in space. The sum of them is the neural process of that line; the sum of their feelings is the feeling of that line; and if we begin to single out particular feelings from the mass, and notice them by their rank in the scale, it is impossible to see how this rank can *appear* except as an actual fixed space-position sensibly felt as a bit of the total line. The scale itself appearing as a line, rank in it must appear as a definite part of the line. If the seven notes of an octave, when heard together, appeared to the sense of hearing as an outspread *line* of sound—which it is needless to say they do not—why then no one note could be discriminated without being localised, according to its pitch, *in* the line, either as one of its extremities or as some part between.<sup>1</sup>

<sup>1</sup> But not alone the gradation of their quality arranges the local-sign feelings in a scale. Our *movements* arrange them also in a *time*-scale. Whenever a stimulus passes from point *a* of the skin or retina to point *f*, it awakens the local-sign feelings in the perfectly definite time-order *abcdef*. It cannot excite *f* until *cde* have been successively aroused. The feeling *c* sometimes is preceded by *ab*, sometimes followed by *ba*, according to the movement's direction; the result of it all being that we never feel either *a*, *c* or *f*, without there clinging to it faint reverberations of the various time-orders of transition in which, throughout past experience, it has been aroused. To the local-sign *a* there clings the tinge or tone, the penumbra or fringe, of the transition *bed*. To *f*, to *c*, there cling quite different tones. Once admit the principle that a feeling may be tinged by the reproductive consciousness of an habitual transition, even when the transition is not made, and it seems entirely natural to admit that, if the transition be habitually in the order *abcdef*, and if *a*, *c* and *f* be felt separately at all, *a* will be felt with an essential *earliness*, *f* with an essential *lateness*, and that *c* will fall between. Thus those psychologists who set little store by local-signs and great store by movements in explaining space-perception, would have a perfectly definite time-order out of which to account for the definite order of positions that appears when sensitive spots are excited all at once. Without, however, the preliminary

And with this we can close the first great division of our subject. We have shown that, within the range of every sense, experience takes *ab initio* the spatial form. We have also shown that in the cases of the retina and skin every sensible total may be subdivided by discriminative attention into sensible parts, which are also spaces, and into relations between the parts, these being sensible spaces too. Furthermore, we have seen that different parts, once discriminated, necessarily fall into a determinate order, both by reason of definite gradations in their quality, and (in a footnote) by reason of the fixed order of time-succession which voluntary attention must follow in its movements when it passes from one to another of them. But in all this nothing has been said of the comparative *measurement* of one sensible space-total against another, or of the way in which, by summing our divers simple sensible space-experiences together, we end by constructing what we regard as the unitary, continuous and infinite objective Space of the real world. To this more difficult inquiry we next pass.

(*To be continued.*)

admission of the 'ultimate fact' that this collective excitement shall feel like a *line* and nothing else, it can never be explained why the new order should needs be an order of *positions*, and not of an altogether different sort. We shall hereafter have any amount of opportunity to observe how thoroughgoing is the participation of motion in all our spatial measurements. Whether the local-signs have their respective qualities evenly graduated or not, the feelings of transition must be set down as among the *veræ causæ* in localisation. But the gradation of the local-signs is hardly to be doubted; so we may believe ourselves really to possess two sets of reasons for localising any point we may happen to distinguish from out the midst of any line or any larger space.

## II.—“IDIOPSYCHOLOGICAL ETHICS.”

By Professor HENRY SIDGWICK.

IN MIND No. 39 I reviewed Dr Martineau's *Types of Ethical Theory*. A reply from Dr. Martineau, somewhat longer than my review, appeared in the next number. On reading this reply, it seemed to me desirable to deal in different ways with the historical and the theoretical portions of it. Dr. Martineau's answers to my criticisms on his historical work convinced me that there was nothing to be gained by a prolonged and enlarged controversy on this part of the subject: a brief and immediate rejoinder, which I gave in the following number, was all that seemed desirable. The case was otherwise with the further explanations which Dr. Martineau had been led to give of his own views: since, on the one hand, these threw new lights on certain parts of Dr. Martineau's doctrine, which rendered necessary a partial modification of my objections to it; while, on the other hand, they suggested to me that possibly a fuller statement of these objections might render them more intelligible to Dr. Martineau, and to any others who may share his ethical views.

The appearance of a second edition of Dr. Martineau's book seems to afford a favourable opportunity for this fuller statement; and, for the convenience of the reader, I shall take up the question *de novo*, and shall not refer—except in one note—to my original article; while, at the same time, I shall try to avoid any mere repetition of arguments there urged.

I will begin by criticising an unwarranted assumption—as it appears to me—which underlies Dr. Martineau's whole procedure. He characterises his ethical system as “idiopsychological”: that is, he professes to give the “story” that the “moral consciousness tells of itself,” or “what the moral sentiment has to say of its own experience”. And he appears generally to entertain no doubt that there is one and the same “story” to be told in all cases; that if the same question be definitely put to the moral consciousness of any number of different individuals, they will return definitely the same answer as his own. He holds, at any rate,<sup>1</sup> that all

<sup>1</sup> ii. 16, 17. The references are throughout to the second edition (vol. ii).

men in their particular moral judgments judge primarily and essentially of the moral preferability of particular impulses or incentives to action, and that so far as the impulses presented are similar men's judgments of their moral value will also be similar. "However limited the range of our moral consciousness, it would lead us all to the same verdicts, had we all the same segment of the series [of impulses] under our cognisance" (p. 61) . . . "the instant that any contending principles press their invitations on [a man], *there too is the consciousness of their respective rights . . . his duty consists in acting from the right affection, about which he is never left in doubt*" (p. 72)—unless, that is, he wilfully neglects to use the faculty of moral insight with which he is endowed, for "the inner eye is ever open, unless it droops in wilful sleep".

Now I do not find that Dr. Martineau has adduced any sufficient reasons for making this fundamental assumption. He can hardly rest it on the agreement of the accounts given of the moral consciousness by the persons who have most systematically reflected on it; since this class includes, as I shall presently show, moralists who disagree fundamentally with Dr. Martineau. And I see no sign that his assumption is based on a careful induction from the accounts actually given by plain men of their moral experience. Indeed in other passages Dr. Martineau seems to admit that the moral judgments of mature men do not actually manifest an undeviating harmony with his own scale of preferability. "To find the true instinct of conscience," he says, "we may more often go with hope to the child than to the grandparents. . . . of most men the earlier years are nobler and purer . . . unfaithfulness inevitably impairs and corrupts the native insight." That there is an element of truth in this I would not deny: it does not, however, appear that Dr. Martineau has made any such careful and extensive observation of the moral judgments of children as would justify him in affirming broadly that they are more in harmony with his own scale than those of mature men; and, in any case, the assumption that the divergences of the latter are due to "unfaithfulness" is one that seems to me to require a kind of justification that he has not attempted.

I have been led—both from observation of my contemporaries and from examination of the morality of other ages and countries—to take an essentially different view of the variation and conflict in men's moral judgments and sentiments which their discourse appears to reveal. I agree, indeed, with Dr. Martineau that

such variations are to a considerable extent due to differences in the objects contemplated; but I hold that they cannot entirely or even mainly be referred to this cause: that when we have made full allowance for this, an important element of difference still remains which it appears to me unwarrantable to attribute to "unfaithfulness," or "wilful drooping of the inward eye" in one or other of the differing individuals. Among reflective persons, who belong to the same age of history and are members of the same civilised society, the amount of difference that is disclosed by a comparison of moral opinions bears usually a small proportion to the amount of agreement; but it is probably rare that some material difference is not discernible, whenever two such persons compare frankly and fully the results of the spontaneous, unreflective play of their moral sentiments. And if we survey the views of the whole aggregate of persons who devote serious thought to moral questions at any given time, we cannot but see that systematic ethical reflection,—while it tends to group individuals together into so-called schools, and so to intensify the consciousness of a common morality among members of the same group,—has so far tended to develop profounder differences between one group and another.

As an illustration of the irreducible differences of which I am speaking, I may note a point of some importance on which I find myself in disagreement with Dr. Martineau. In stating what he calls the "fundamental ethical fact of which we have to find the interpretation" (p. 18), he affirms that "wherever disapprobation falls, we are impelled to award disgrace and such external ill as may mark our antipathy, with the consciousness that we are not only entitled but constrained to this infliction". Now I find that the sense of being "constrained to award external ill" to a fellow-man of whose conduct I disapprove, not in order to prevent worse mischief to him or to others, but merely to "mark my antipathy," is entirely absent from my moral consciousness; and, what is more, I feel an instinctive moral aversion to the impulse thus characterised which goes decidedly beyond my reflective and deliberate disapprobation of it. But I do not therefore affirm that Dr. Martineau has wrongly analysed his own moral consciousness; still less do I suggest that it has been corrupted through unfaithfulness. I should rather say that his sentiment appears to me to belong to that earlier stage in the development of morality in which legal punishment is regarded as essentially retributive, instead of preventive. Nor do I affirm that the common sense even of civilised mankind

has as yet passed out of this stage; but I think that it is beginning to pass out of it, and that a continually increasing number of reflective persons are conscious of no *moral* impulse to "award external ill" to their fellow-creatures, except as a means to some ulterior good.

I have made these preliminary remarks, because, while the main object of this paper is to show the erroneousness of Dr. Martineau's account of the moral judgments which we, here and now, habitually pass, it is important to make clear at the outset that the question discussed does not seem to me to admit of being answered so decisively as Dr. Martineau assumes. I think that the assumption of a common moral consciousness which we all share, and which each of us can find in himself by introspection, is to a great extent true; that to a great extent we—educated members of the same society—tend, in our ordinary thought and discourse, to pass similar judgments of approbation and disapprobation, feel similar sentiments of liking or aversion for the conduct so judged, and similar promptings to encourage or repress it. But, after carefully reflecting on my own moral sentiments and comparing them with those of others—to whom I have no reason to attribute a less careful reflection—I do not find in the result anything like the extent of agreement which Dr. Martineau assumes. This is the explanation of the "hesitation" that Dr. Martineau finds in my attempt to formulate the morality of common sense: on any point on which opposing opinions appear to me tolerably balanced, so that neither can fairly be described as eccentric, I represent common sense as hesitating: to decide any such point either way would be an improper substitution of my own judgment for that common judgment of educated and thoughtful persons which I am trying to ascertain and formulate. Nor do I consider the verdict of common sense, so far as it is clearly pronounced, as final on the question of ethical truth or falsehood; since a study of the history of human opinion leads me to regard the current civilised morality of the present age as merely a stage in a long process of development, in which the human mind has—I hope—been gradually moving towards a truer apprehension of what ought to be. As reflection shows us in the morality of earlier stages an element of what we now agree to regard as confusion and error, it seems reasonable to suppose that similar defects are lurking in our own current and accepted morality; and, in fact, observation and analysis of this morality, so far as I have been able to ascertain what it is, has led me to see such defects in it. How to eliminate, if

possible, these elements of error, confusion and uncertainty is, in my view, the fundamental question of ethics, which can only be answered by the construction of an ethical system. With this task I am not at present concerned—further than to explain that I do not expect to find this true moral system where Dr. Martineau looks for it; that is, by introspection directed to the moral sentiments and apparently immediate moral judgments caused in my mind by the contemplation of particular acts, apart from systematic consideration of these acts and their consequences in relation to what I adopt as the ultimate end of action. That I should have such sentiments, and, where prompt action is needed, should act on such judgments, is at once natural and, in my opinion, conducive to the ultimate end; but I continually find that these immediate pronouncements have to be corrected and restrained by a careful consideration of consequences.

To sum up: there are, in my view, three fundamentally distinct questions, which ought to be investigated by essentially different methods: (1) what the received morality was in other ages and countries, which is to be answered by impartial historical study; (2) what the received morality is here and now, which is to be ascertained by an unprejudiced comparison of one's own moral judgments with those of others; (3) what morality ought to be—a problem which can only be solved by the construction of an ethical system. It is the answer which Dr. Martineau has given to the second of these questions—and this alone—which I propose now to consider.

According to Dr. Martineau, the "broad fact" of the moral consciousness is that "we have an irresistible tendency to pass judgments of right and wrong" (p. 17): when I pass such judgments "as an agent" on my own conduct "I speak of my duty"—a word which "expresses the sense we have of a debt which we are bound," or "obliged," to pay. This sense of obligation implies, of course, a conflict between the moral judgment and some impulse prompting us to conduct disapproved by our moral judgment. But in Dr. Martineau's view it necessarily implies more than this; it necessarily implies the recognition of "another person," who has authority over us: the dictates of conscience, he holds, are unmeaning unless we give them a Theistic interpretation.

Now I quite admit that a Christian Theist must necessarily conceive of the dictates of conscience as Divine commands; but I think it rash and unwarrantable in him to affirm that



they cannot be regarded as authoritative unless they are so conceived. To me, indeed, it is inconceivable that the authoritativeness or bindingness of moral rules should depend essentially on the fact that they emanate from "another Person". Dr. Martineau himself admits—or I should rather say emphatically declares—that it is not a Person regarded apart from moral attributes that can be conceived as the source of the authority of which we are speaking; it is, he says, "an inward rule of Right which gives law to the action of God's power . . . which first elevates into authority what else would only operate as a necessity or a bribe" (p. 113). If, then, moral rules, when conceived as Divine commands, are thought to have authority not because they emanate from an Omnipotent Person, but because they emanate from a person who wills in accordance with a rule of Right, I cannot conceive how they should lose this authority even if the "other person" is eliminated altogether, provided that the "rule of right" is left.

I may perhaps make this clearer by referring to an analogy which Dr. Martineau elsewhere draws between mathematical and moral truth. "There is," he says, "as much ground, or as little, for trusting to the report of our moral faculty as for believing our intellect respecting the relations of number and dimensions. Whatever be the 'authority' of Reason respecting the true, the same is the 'authority' of Conscience respecting the right and the good"<sup>1</sup> (p. 114).

Now I presume that Dr. Martineau does not maintain that the "authority of Reason respecting the relations of number and dimension in regard to time" cannot "really

<sup>1</sup> In dealing with this point in my former article I quoted passages in which, as it appeared to me, Dr. Martineau committed himself to a "definitely and confidently anthropomorphic conception of the Divine mind". In his reply, Dr. Martineau affirmed that in the passages quoted he intended to "*explain* an anthropomorphic habit" of which he had "exposed the error," not to *adopt* it as his own. I accept, of course, Dr. Martineau's account of his intentions; but, having carefully re-read the passages from which I quoted—especially p. 86 (1st ed.) with its context, which remains unaltered (as p. 92) in the present edition—I feel bound to say that they are not calculated to convey to the mind of an ordinary reader what he now declares to be his meaning. Dr. Martineau writes throughout from an avowedly Christian point of view: hence, when he describes "Christianity" and "Christian feeling" as taking "naturally" a certain view of the Divine Nature, without which "the negative element requisite for every ethical conception, the antagonism to something resisted and rejected, would be wanting; and the evangelical and the heathen Theism would be without further essential distinction"—I do not think any ordinary reader will suppose that Dr. Martineau is intending to "expose the error" of the view in question.

exist" for an atheistic mathematician—one who has, in Laplace's phrase, had no "besoin de l'hypothèse de Dieu" in his system of the physical universe. But if he does not maintain this, I think he is bound in consistency to admit that the "authority of Conscience respecting the right" may similarly exist for the atheistic moralist.

I have accepted, for the sake of argument, Dr. Martineau's distinction between 'Reason' and 'Conscience'. But, to prevent misunderstanding, I ought to explain that, in my view, the "authority of Conscience" is the authority of Reason in its application to practice: "authority" or "obligation," in my view, expresses the relation that we recognise on reflection between a judgment as to what ought to be willed by us and a non-rational impulse prompting in a direction opposed to this judgment.

Let us now consider more closely the general nature of the judgment to which this authority—however understood—is recognised as belonging. I find that in discussing this question Dr. Martineau, on the one hand, labours needlessly a point not likely to be disputed; and, on the other hand, confuses or slurs over the distinction which I regard as fundamentally important. We shall all, I conceive, agree that moral approbation, strictly taken,<sup>1</sup> relates to what Dr. Martineau loosely calls the "inner spring or inner principle" of an action—*i.e.*, that it relates to the mental or psychical element of the complex fact which we call action; as distinct from the muscular movement that follows the psychical volition, or any external consequences of this movement considered as external and not as foreseen by the agent. Further, I agree with Dr. Martineau in defining the object of the common moral judgment as volition or choice of some kind. Our difference begins when we ask what the object is which is willed or chosen. In Dr. Martineau's view the choice is always between particular impulses to action—whether "propensions," "passions," "affections" or "sentiments"; in my view it is, in the largest and most important class of cases, among different sets of foreseen external effects, all of which are conceived to be within the power of the agent. That Dr. Martineau has not clearly seen the point at issue may, I think, be inferred from the language (cp. pp. 129-30) in which he criticises my own procedure. He

<sup>1</sup> I say 'strictly taken,' because in a wider sense of the terms we approve or disapprove of a human being and his actions without distinguishing between their voluntary and involuntary elements; just as—in Dr. Martineau's words—we "approve a house" or "condemn a ship," from a consideration of its fitness or unfitness for some accepted end.

says that I, among others, "by no means call in question the general principle that moral worth or defect is to be estimated by the inward *affection or intention* whence actions flow"; and implies that I have thereby "admitted the necessity" of "enumerating" and "classifying" motives or impulses to action, though I afterwards "run away from the work as unmanageable and superfluous". But it is plain that if I am right in regarding the choice of right outward effect as being, in the most important cases, the primary object of ordinary moral judgment, my primary business is to enumerate and classify, not the propensions or passions that prompt to choice, but the outward effects that ought to be chosen and intended. It is always the choice or intention, and not its actual result, that is approved or disapproved; but the differences of choice or intention, on which the moral judgment turns, can only be conceived as differences in the objects chosen; and can therefore, on my view, only be sought in that "field of external effects of action" which Dr. Martineau would relegate to a separate and subsequent investigation.

Nor is the case practically altered by that condition of our approval of right choice to which I have (in my *Methods of Ethics*, bk. iii., ch. i., p. 3) called attention under the term "subjective rightness"; viz., that the outward effects which we judge to be the right objects of choice must not be thought by the agent to be wrong. The condition is, in my view, an essential one; if, in any case—owing to what we regard as a mistake of conscience—the agent makes what we hold to be the right choice of foreseen outward effects, himself conceiving it to be wrong, we certainly withhold our moral approbation. If we are asked whether in this unhappy situation a man ought to do what he mistakenly believes to be his duty, or what really is his duty if he could only think so, the question is found rather perplexing by common sense; and—so far as it can ever be a practical question—it would, I think, be answered differently in different cases, according to the magnitude and importance of the error of conscience. But the difficulties of this question need not now be considered; for, obviously, they arise equally whether the mistake of conscience relates to choice of motives or to choice of outward effects; and, however essential it may be that a moral agent should do what he believes to be right, this condition of the object of moral approbation does not require or admit of any systematic development. Thus the details with which ethics is concerned still remain to be sought elsewhere; and, on my view, they are found by common sense primarily in

the region of external effects, and not among the different propensions, passions, affections or sentiments impelling the agent.

It may be said, perhaps, that the issue as I have stated it cannot be fundamental, because the effects as foreseen must operate as motives—as causing desires or aversions—otherwise action would not result.<sup>1</sup> But my point is that the effects which, in our judgment, make an action bad may not have been desired at all, but only accepted as inevitable accompaniments of what was desired, and that the effects which make it good may have only been desired as a means to some further end; and that it is not to the desired effects of volition, *quâ* desired, but to the effects foreseen as certain or highly probable—and so chosen instead of other possible consequences—that our judgments of approbation and disapprobation are commonly directed under the heads of justice, temperance, good faith, veracity and other leading branches of duty. I contend that the approbation implied by the designation of agents or acts as truthful, just, temperate—and the disapprobation implied by the opposite terms—are commonly given independently of any consideration of motive, as distinct from intention or choice to produce certain external effects (using 'external' to include effects on the agent's physical system). I do not say, as Dr. Martineau has understood me to say, that we regard the motives of such acts as ethically unimportant: I recognise that common sense distinguishes motives as higher and lower, and even positively as good and bad; and if we definitely conceive of (say) truth-speaking as prompted by a motive recognised as bad, we do not approve of the agent's state of mind,

<sup>1</sup> Dr. Martineau would not exactly urge this; because he considers it fundamentally important to lay stress on the absence of any conscious foresight of effects in the case of what he distinguishes as "primary springs of action," which urge us, "in the way of unreflecting instinct," to seek blindly ends not preconceived. I agree that such blind impulses have a considerable place among the normal causes of our voluntary action, though I think he has exaggerated their place; according to my experience, they cannot be at all powerful or prolonged without arousing some representation of the effects to which they prompt. But, in any case, I cannot understand how they can be morally judged *as blind*; I conceive that the effects of the action to which such unreflecting impulses prompt, however absent or faintly represented when the impulse operates, are necessarily represented when it becomes the object of a moral judgment. This will appear, I think, if we reflect on any example included in Dr. Martineau's exposition of the "scale of springs of action"—*e.g.*, in comparing the appetite for food with the desire of the pleasure of eating, he says, "it is surely meaner to eat for the pleasure's sake than to appease the simple hunger": well, it seems to me clear that, so far as I pass this judgment, it is not on hunger, *quâ* blind impulse, but on hunger conceived as an impulse directed towards the removal of an organic want.

though I should say that we still approve of the act. We think that the veracious agent has willed what he ought to have willed, though he ought to have willed something else too, *viz.*, the suppression of the bad motive—so far, at least, as it was within his power to suppress it while doing the act. I introduce this last qualification, because I think that it is not always within the power of the will—and therefore not always strictly a duty—to get rid of an objectionable motive.

Take the case of the motive which Dr. Martineau places last,—Vindictiveness, or the desire of malevolent pleasure. Bentham and Sir James Stephen<sup>1</sup> regard it as an important part of the benefits of criminal law that it provides the “pleasure of revenge,” or, as Sir J. Stephen says, a “legitimate satisfaction for the passion of revenge”. These phrases, I think, give some offence to our common moral consciousness; and, in my *Methods of Ethics*, I have suggested that “perhaps we may distinguish between the impulse to inflict pain and the desire of the antipathetic pleasure which the agent will reap from this infliction, and approve the former in certain circumstances, but condemn the latter absolutely”. I suggest this, however, with some hesitation, on account of the great difficulty of separating the two impulses. A man under the influence of a strong passion of resentment can hardly exclude from his mind altogether an anticipation of the pleasure that he will feel when the passion is gratified; and, if so, he can hardly exclude altogether the desire of this gratification. It is, I think, clear to common sense that a man ought not to *cherish* this desire, to gloat over the anticipated gratification; but it is, perhaps, too severe to say that the desire of malevolent pleasure should be excluded altogether. If, as Sir James Stephen says, the “deliberate satisfaction which criminal law affords to the desire of vengeance” excited by gross crimes is an indispensable means of preventing such crimes—human nature being what it is; if it is important for the well-being of society that men should derive “hearty satisfaction” from the hanging of a cold-blooded murderer, or the infliction of penal servitude on an unscrupulous swindler; then it is, perhaps, going too far to condemn absolutely the desire of this satisfaction. In any case, it seems to me contrary to common sense to say that the prosecution of such a murderer or swindler becomes a bad act if the prosecutor is conscious of desiring the malevolent pleasure that he will receive from the criminal’s punishment: we commonly judge such an act to be right,

<sup>1</sup> Cp. *General View of the Criminal Law of England*, ch. iv.

even though partly done from a motive which we think ought to be excluded as far as possible. It is sometimes said that, though a man cannot help *having* the inferior motive, he can and ought to avoid *yielding* to it, or 'identifying himself' with it; but here there seems to me some psychological confusion or error. I cannot understand how a man can avoid 'yielding to' a desire, if he cannot exclude it from his mind while doing precisely the act to which it prompts.<sup>1</sup> Even if the motive of an externally right act were entirely bad—*e.g.*, if a man were strictly veracious with a view to gain and ultimately misuse the confidence of his hearers—common sense, I conceive, would still decide that his veracious volition was right *quâ* veracious; only that it coexisted with a wrong intention as to future conduct, and did not indicate any moral worth—*i.e.*, any general tendency to right actions—in the agent.

It is still more clear to common sense that bad acts may be done from the best conceivable motives; indeed we are all familiar with historical examples of men prompted by religion, patriotism or philanthropy to acts that have excited most general and intense moral disapprobation. When we contemplate Torquemada torturing a heretic for the eternal good of souls, Ravailiac assassinating a monarch in the cause of God and his church, a Nihilist murdering a number of innocent persons in order to benefit his country by the destruction of an emperor, a pastor poisoning his congregation in the sacramental wine in the hope of securing their eternal happiness—we recognise that such acts are (so far as we know) not only subjectively right, but done from the very highest motives; still common sense does not therefore hesitate to pronounce them profoundly bad.

It may be said, however, that my argument admits that the distinction of 'good' and 'bad,' or 'higher' and 'lower,' motives is recognised by common sense as important; it must, therefore, be the duty of the moralist to make this distinction as precise as possible, in its application to different classes of motives; and in doing this he will be led to frame such a scale as Dr. Martineau's. But a careful reflection upon our common judgments or motives will lead us, I think, to interpret and systematise them in a manner fundamentally different from Dr. Martineau's. According to him, the springs of human action may be arranged in an

<sup>1</sup> Very often the course of action prompted by a bad motive would differ palpably in details from that prompted by a pure regard for duty; and such differences would afford occasions for "not yielding" to the bad motive. But I know no reason for assuming that palpable differences of this kind would be found in all cases.

ethical scale, so constituted that if any of its "propensions,"<sup>1</sup> "passions," "affections" and "sentiments" thus classified ever comes into conflict with one higher in the scale, right volition consists in choosing the "higher" in preference to the "lower". The view of common sense appears to me rather that, in all or most cases, a natural impulse has its proper sphere, within which it should be normally operative, and that the question whether a higher motive should yield to a lower is one that cannot be answered decisively in the general way in which Dr. Martineau answers it : the answer must depend on the particular conditions and circumstances of the conflict. For a higher motive may intrude unseasonably into the proper sphere of the lower, just as the lower is liable to encroach on the higher ; only since there is very much less danger of the former intrusion, it naturally falls into the background in ethical discussions and exhortations that have a practical aim. The matter is complicated by this further consideration : we recognise that as the character of a moral agent becomes better, the motives that we rank as "higher" tend to be developed, so that their normal sphere of operation continually enlarges at the expense of the lower. Hence there are two distinct aims in moral regulation and culture, so far as they relate to motives : (1) to keep the "lower" motive within the limits within which its operation is considered to be legitimate and good on the whole, so long as we cannot substitute for it the equally effective operation of a higher motive ; and at the same time (2) to effect this substitution of "higher" for "lower" gradually, so far as can be done without danger, up to a limit which we cannot definitely fix, but which we

<sup>1</sup> For the reader's convenience, I give the table of the springs of action in which Dr. Martineau has collected the results of his survey :—

#### LOWEST.

1. Secondary Passions—Censoriousness, Vindictiveness, Suspiciousness.
2. Secondary Organic Propensions—Love of Ease and Sensual Pleasure.
3. Primary Organic Propensions—Appetites.
4. Primary Animal Propension—Spontaneous Activity (unselective).
5. Love of Gain (reflective derivation from Appetite).
6. Secondary Affections (sentimental indulgence of sympathetic feelings).
7. Primary Passions—Antipathy, Fear, Resentment.
8. Causal Energy—Love of Power, or Ambition ; Love of Liberty.
9. Secondary Sentiments—Love of Culture.
10. Primary Sentiments of Wonder and Admiration.
11. Primary Affections, Parental and Social—with (approximately) Generosity and Gratitude.
12. Primary Affection of Compassion.
13. Primary Sentiment of Reverence.

#### HIGHEST.



certainly conceive, for the most part, as falling short of complete exclusion of the lower motive.

I may illustrate by reference to the passion of resentment of which I before spoke. The view of reflective common sense is, I think, that the malevolent impulse so designated, as long as it is strictly limited to resentment against wrong and operates in aid of justice, has a legitimate sphere of action in the social life of human beings as actually constituted: that, indeed, its suppression would be gravely mischievous, unless we could at the same time so intensify the ordinary man's regard for justice or for social well-being that the total strength of motives prompting to the punishment of crime should not be diminished. But, however much it were "to be wished," as Butler says, that men would repress wrong from these higher motives rather than from passionate resentment, we cannot hope to effect this change in human beings generally except by a slow and gradual process of elevation of character: therefore—to come to the point on which Dr. Martineau appears to me to be at issue with common sense—supposing a conflict between "Compassion," which is highest but one in Dr. Martineau's scale, and "Resentment," which he places about the middle, it is by no means to be laid down as a general rule that compassion ought to prevail. We ought rather—with Butler—to regard resentment as a salutary "balance to the weakness of pity," which would be liable to prevent the execution of justice if resentment were excluded.

Or we might similarly take the impulse which comes lowest (among those not condemned altogether) in Dr. Martineau's scale—the "Love of Ease and Sensual Pleasure". No doubt this impulse, or group of impulses, is continually leading men to shirk or scamp their strict duty, or to fall in some less definite way below their own ideal of conduct; hence the attitude habitually maintained towards it by preachers and practical moralists is that of repression. Still, common sense surely recognises that there are cases in which even this impulse ought to prevail over impulses ranked much above it in Dr. Martineau's scale; we often find men prompted—say by "love of gain" or "love of culture"—to shorten unduly their hours of recreation; and in the case of a conflict of motives under such circumstances we should judge it best that victory should remain on the side of the "love of ease and pleasure," and that the unseasonable intrusion of the higher motive should be repelled.

Perhaps it may be said that in neither of these instances would the conflict of motives remain such as I have described: that though the struggle might begin, so to say,

as a duel between resentment and compassion, or between love of ease and love of gain, it would not be fought out in the lists so marked out; since still higher motives would come in in each case, regard for justice and social well-being on the side of resentment, regard for health and ultimate efficiency for work on the side of love of ease; and that it would be the intervention of these higher motives that would decide the struggle so far as it was decided rightly and as we should approve. This certainly is what would happen in my own case, if the supposed conflict were at all serious and its decision deliberate; and it is for this reason that such a scale as Dr. Martineau has drawn up, of motives arranged according to their moral rank, can never, in my view, have more than a very subordinate ethical importance. It may serve to indicate in a rough and general way the kinds of desires which it is ordinarily best to encourage and indulge, in comparison with other kinds which are liable to compete and collide with them; and we might perhaps settle, by means of it, some of the comparatively trifling conflicts of motive which the varying and complex play of needs, habits, interests, and their accompanying emotions continually brings forth in our daily life. But if a serious question of conduct is raised, I cannot conceive myself deciding it morally by any comparison of motives below the highest: the case must, as I have elsewhere said,<sup>1</sup> be "carried up" for decision "into the court" of the motive which I regard as supreme—*i.e.*, the desire to promote universal good, understood as happiness of sentient beings generally. Thus the comparison ultimately decisive on the particular question raised would inevitably be not a comparison between the motives primarily conflicting, but between the effects of the different lines of conduct to which they respectively prompt, considered in relation to whatever we regard as the ultimate end of reasonable action. And this, I conceive, is the course which moral reflection will naturally take in the case not only of utilitarians, but of all who follow Butler in regarding our passions and propensions as forming naturally a "system or constitution," in which the ends of lower impulses are subordinate as means to the ends of certain governing motives, or are comprehended as parts in these larger ends. So far as any view of this kind is taken, any tabulation of the moral rank of motives other than the governing ones can, at best, have only a quite subordinate interest: it cannot possibly furnish a method of dealing with the fundamental problems of ethical construction.

<sup>1</sup> *Methods of Ethics*, bk. iii., ch. xii., p. 3.

### III.—PSYCHOLOGICAL PRINCIPLES. (III.)

By JAMES WARD.

#### *Attention and the Field of Consciousness.*

IN resuming, after a long interval,<sup>1</sup> this attempt to define and explicate the principles of general psychology, the writer feels bound first of all to consider certain objections urged by Prof. Bain in the last number of *MIND* to some of the positions already taken up. Though Prof. Bain's very generous criticisms refer directly to an article that has appeared elsewhere, yet in one chief point at least his strictures apply equally to what has been said here. The point in question is everywhere the peculiar stress "laid on Attention" and "the immense compass assigned to the word". It is then first a question of fact and next a question of terms.

Prof. Bain also cites Mr. Bradley's discussion in an earlier Number (43) of the question: "Is there any special Activity of Attention?" as containing "conclusions on the whole remarkably just," and which therefore, it may be supposed, he regards as a further refutation of the doctrine of the present writer with which he had just been dealing. The "very great acumen" of this discussion of Mr. Bradley's is unmistakable, and he would be a foolishly confident man who had no misgivings on finding a thinker of such subtlety and independence dissenting from him. But against whom is this discussion directed? Certainly it has but little relevance as against the position to be here expounded and defended, though it may serve incidentally to make that position clearer; for such purpose perhaps the reader will be kind enough to look back to it occasionally.

One or two preliminary considerations may serve to clear the way and, by showing the steps through which the writer came to lay this peculiar stress on Attention, enable the reader the better to judge whether the leading was that of truth or error. Everyone the least familiar with the history of modern knowledge must have remarked the influence of the more exact sciences upon the science of mind and upon philosophy generally. For Descartes and Spinoza mathematics was the model; for Leibniz, and still more for Kant,

<sup>1</sup> See *MIND* viii. 153, 465.

the model was physics. Since Kant's day the science of physics has made great strides ; and a new science, biology, has come into being : from both—at least in respect of method—the psychologist has much to learn. To be more specific—we have first the modern doctrine of energy with the theory of dimensions, and we have next that hypothesis which has entirely transformed our conceptions concerning organised life, the hypothesis of evolution. Also we may say generally that the problem of psychology is twofold : (1) to analyse the facts of mental life, and (2) to ascertain the course and conditions of mental development.

It is especially in dealing with the second problem that the biologist inspires us to attempt a wider range and to take a larger view. We see him refer all the varied types of life to a few simple forms ; the differentiation of organs, in the highest and lowest alike, to changes in two or three primitive germinal layers ; while their several physiological functions are traced back to the fundamental properties of protoplasm, such as contractility, irritability, &c. Now what seems desirable in psychology is an equally generalised analysis of the broad facts we include under the term a mind—'a mind,' and not the stuff or substance which dualistic philosophers oppose to that other stuff they call matter. But in trying to take a hint from the biologist we come at once upon a difficulty. He can see his simplest creature, the *amœba*, manifest the several vital functions ; he can see the impregnated ovum segment, differentiate its primitive layers and develop stage by stage ; he can range the leading types of the animal or vegetable kingdom in their appropriate order before his eyes. The psychologist can do nothing at all of this kind directly, and only very little indirectly. He cannot analyse the simplest forms or stages of consciousness and note the progressive advance from these to higher. He is sure beyond all serious doubt that mind and nervous organisation are concomitant, much, for example, as colour and wave-length are. But still a given nervous development is scarcely more a clue to the mind that corresponds than the wave-length of violet, as compared with that of red, is a clue to the difference of sensation that accompanies retinal excitation by these waves. As far as direct acquaintance goes the psychologist is confined to the most complex form of mind, and that in its maturity. His observation of himself, supplemented by like observations on the part of others, have made possible a certain objective knowledge of the human mind, which, broadly speaking, is as plain and as verifiable as other depart-

ments of empirical knowledge.<sup>1</sup> But where intercommunication is out of the question, and where the physical life and conditions are widely different from our own, we are left to more or less probable conjecture. Till we have correlated the form of mind we do know to its nervous organisation, it seems hopeless to attempt inferences concerning the minds of the lower animals on the basis merely of what we know of their comparative anatomy. The psychologist who essays to treat mind evolutionally has to begin at the top of the chain and work downwards; he cannot, like the biologist, begin at the bottom and work upwards. The problem for him is in large measure an inverse problem and beset with many of the characteristic difficulties of such a method. His one chance of anything like scientific exactness lies in securing first of all an accurate and complete general analysis which shall tally, as far as the nature of the case admits, with what has been independently ascertained of the anatomy and physiology of the nervous system. And it is in this part of his work that he has much to learn from the modern physicist.

It is a mistake to suppose that all the exactness of modern physics is due to measurement, and to suppose accordingly that psychology can never be rendered exact till it becomes psychometry. In one important respect physics is exact even where concrete quantitative determinations may be impracticable; that is to say, the dimensions of a quantity may be known even when its numerical magnitude is not. All physical quantities that are not simply lengths, times or masses are expressible in terms of these fundamental units, and every equation that claims to *have a physical meaning* must involve only like dimensions of these units as far as it involves them at all. We cannot, *e.g.*, equate so much momentum with so much energy any more than we can so much length with so much area. Any equality that is true of two physical quantities must obviously remain true whatever be the unit of measurement employed; but then the dimensions must be the same, else a change of unit will unequally affect the numerical value of the two quantities. But further prolixity would be unpardonable in what is only meant to serve as an illustration: it is time to turn to the point to be illustrated. A physicist never confounds velocity and acceleration, since they have different dimensions in time; or energy and work,

<sup>1</sup> It is a stupid confusion to represent this knowledge as 'subjective' in the sense of being true only of a *sui generis* M or N; as if there were no human kind.

since they have different dimensions in length. But psychologists seem to be aware of no confusion when they talk indifferently of states of mind, contents of mind, acts of mind; treat the same fact now as a process, now as a product; and range on one level feelings which presuppose presentations and acts which presuppose feelings. Some of the most striking instances of what might be called by analogy this arbitrary change of systematic units are to be found in Sir W. Hamilton's writings.<sup>1</sup> But probably all psychological writing, even the clearest, is marked by this varying use of terms involving incompatible complications and by surreptitious changes of standpoint; as if, for example, one should attempt to compare a quantity of electricity measured by one system of units with a quantity of heat measured by another, or try to find the locus of a curve the ordinates of which have no common origin. If then we take an example from Prof. Bain himself it will be because it is one which also seems to further the main purpose of this paper. With this view let us examine his general analysis of mind:<sup>2</sup>—

"The only account of mind strictly admissible in scientific psychology consists in specifying three *properties or functions*—Feeling, Will or Volition, and Thought or Intellect. . . . FEELING includes all our pleasures and pains, and certain *modes of excitement or consciousness* simply that are neutral. . . . The two leading divisions of the feelings are commonly given as Sensations and Emotions (p. 2). . . . A Sensation is defined as the *mental impression, feeling or conscious state* resulting from the action of external things on some part of the body, called on that account sensitive (p. 27). . . . The emotions, as compared with the sensations, are secondary, derived or compound feelings (p. 226). WILL or VOLITION comprises all the *actions* of human beings in so far as impelled or guided by Feelings. . . . THOUGHT, INTELLECT, Intelligence or Cognition includes the *powers* known as Perception, Memory, Conception, Abstraction, Reason, Judgment and Imagination. It is analysed, as will be seen, into three functions, called *Discrimination* or Consciousness of Difference; *Similarity*, or Consciousness of Agreement; and *Retentiveness*, or Memory" (p. 2).

Now this is substantially an unimpeachable account of the broad facts of mind, and yet the moment we scrutinise the logical implications of the terms here singled out by italics, their want of precision becomes unmistakable. At the outset we are told of three properties or functions of Mind, as if there were no difference between predicating property and function; whereas, as soon as we raise the question, we become aware that while everything has properties, functions—unless metaphorically employed—pertain only to agents.

<sup>1</sup> Cp. instances previously given in MIND viii. 476, note.

<sup>2</sup> The references, unless otherwise stated, are to Prof. Bain's *Mental and Moral Science*.

If Mind is to be viewed as having functions it must be viewed as an agent. When we look for a description of the three functions, we find in each case that an enumeration is given us instead, and that the facts enumerated are ranged under three different categories. Feeling<sup>1</sup> *includes* certain impressions, *states* or modes of excitement; Will *comprises* certain actions, and Intellect *includes* certain powers. Now states, actions and powers are certainly not congruent conceptions: a state or an impression is not a function, though to receive an impression or to change a state may be; a function again is not an action, but the performance of an action, and even powers are not functions though necessarily presupposed in them. Let us descend to further detail.

There is an immense advance on his Scottish predecessors in Prof. Bain's analysis of Intellect into the three functions of Discrimination, Similiarity and Retentiveness, instead of the old medley of "powers known as Perception, Memory, Conception," &c., &c. But it must strike anybody who has any sense of the import of suffixes, that *discrimination*, *similarity* and *retentiveness* have, so to say, very different logical 'dimensions'. Hamilton, though he could not get on with less than six intellectual faculties, did at least contrive to make them all *-ives*. Prof. Bain could, of course, easily have used the terms Discrimination, Assimilation, Conservation, or the like, if he had chosen; and these terms are all of the general form SPO.<sup>2</sup> But there is a reason why this even and explicit indication of transitive activity is avoided or missed: it is not from any sentimental antipathy to speculation or any anti-theological bias—these are matters that do not trouble a psychologist who 'keeps his eyes in the boat'. The reason lies rather in the ambiguity of the term consciousness, which occurs once and again in the exposition. As Prof. Bain has himself pointed out, the proper meaning of conscious state or state of consciousness is "mental life as opposed to torpor or insensibility; the loss of consciousness is mental extinction for the time being" (Appendix, p. 93). But if this be the proper meaning of consciousness, it seems obvious that one is guilty of a sort of fallacy of division in calling a sensation, *e.g.*, a conscious state. We might as well resolve a man physically into an aggregate of smaller men (like Hobbes's Leviathan), as call each and all of the

<sup>1</sup> It is one of the many grievous defects of our English nomenclature that we have no word which, like the German *Das Gemüth*, runs naturally on all-fours beside Will and Intellect.

<sup>2</sup> See former paper, MIND, viii. 468, note.



objects or contents of his consciousness conscious states or states of consciousness. Further, although at the outset Prof. Bain has distinguished Feelings as made up of *states* from Intellect which consists of *powers*, yet he passes by an easy transition from discrimination to a "consciousness of difference," and then to a "*feeling* of difference"; by similar stages his second intellectual function becomes "the conscious state arising from agreement in the midst of difference" (pp. 82, 83). Nobody confounds painting with pictures or singing with songs, yet here we have just such a confusion of the activity implied in consciousness with the objects or products of that activity. Nay, in some sort the case is even worse. When we are told that as intellectual the mind discriminates, we expect to find that, apart from this activity, the "states" of which it is conscious are not discriminated. But presently we see the tables turned: the function seems now to belong to the "states," and not to whatever is conscious of the states: the singing arises from the song, and not the song from the singing. True, intellect is not creative, but only, as the word implies, selective: it can only differentiate where there is difference and assimilate where there is similarity. Every process presupposes appropriate material; but the process is more than the material for all that. Here we have process, material and product continually confused, because all alike are styled states of consciousness. Nothing hides so effectually as familiarity: once committed to this one term, therefore, it is small wonder if the constant element, the activity implied in 'conscious,' the 'I think' which, as Kant said, must be conceived as accompanying all my presentations, should drop out of sight, and the relations established among presentations should come to be regarded as the direct outcome of their interaction. We are then at the other pole. In place of a subject conserving or retaining its presentations, we have these, under certain circumstances, "tending to grow together or cohere" (p. 85); and instead of this subject comparing its presentations and connecting them, we have these, whenever they recur, "tending to revive their like among previously occurring states" (p. 127).

In his doctrine of the Will Prof. Bain advances if anything still more upon his predecessors: *e.g.*, in singling out movements as a characteristic class of presentations, in emphasising the connexion of movement with feeling, and tracing the growth of voluntary power step by step as ideation advances. For all that, there seems here also the same inevitable confusion due to an inexact terminology and an

imperfect analysis of the leading term consciousness. An action, according to Prof. Bain, is a muscular movement, actual or ideal (p. 342), by which, of course, we are to understand not a muscular movement as outwardly observed whether by the agent or by others, but "muscular consciousness, a series of modes of expended energy which the memory can retain, and which we can associate with other mental states" (p. 25). A movement then, psychologically regarded, is, Prof. Bain allows, a presentation or mental state admitting of conservation and association like any other. Again, voluntary actions, as we have seen, are all the actions of human beings in so far as impelled or guided by feelings, and feelings also are presentations or "mental states" admitting of conservation and association. Now what is "the link between feeling and action"? Apparently the feeling ( $p$ ) impels or guides the human being ( $M$  or  $N$ ), whereupon the human being is conscious either of ( $\kappa$ ) expending energy, or of ( $\kappa'$ ) energy expended, in ( $k$ ) muscular movement. It is to be noted that certain entirely new elements enter here. The feeling ( $p$ ) as such is a "mental state"; but, to say nothing of the change of category which the attribution of the power to impel and even guide implies, the impulsion or guidance of the human being is a fact extraneous and additional to the mere presentation ( $p$ ). Similarly, though less clearly, in the case of the resulting action. To admit of conservation and association a presentation must have a certain individuality, such as pertains, *e.g.*, to a movement of hand or eye or tongue: this has been denoted above by  $k$ . But no such individuality pertains to the expenditure of energy in producing  $k$ .<sup>1</sup> What then are we to say of this common fact of expenditure of energy present in all the several modes of our varying muscular consciousness? It is scarcely enough to say there is consciousness of energy expended ( $\kappa'$ ), implying thereby that such consciousness is a receptive state. So regarded  $\kappa'$  would go for nothing: there would be the presentation of  $k$  and no

<sup>1</sup> There is sufficient analogy between the psychical and the physical to make it worth while to cite by way of illustration the following passage from Clerk Maxwell's admirable little tract, *Matter and Motion*:—"We cannot identify a particular portion of energy or trace it through its transformations. It has no individual existence, such as that which we attribute to particular portions of matter. The transactions of the material universe appear to be conducted, as it were, on a system of credit. Each transaction consists of the transfer of so much credit or energy from one body to another. . . . The energy so transferred does not retain any character by which it can be identified when it passes from one form to another" (Art. cix.—"Energy not capable of Identification").

more. We seem then shut up to  $\kappa$ , if "muscular consciousness" is to have any special characteristic, that is to say, the human being (M or N) is not only conscious of  $k$  but conscious of producing it. This twofold relation of the human being to the two states, *viz.*, the feeling that impels and the movement that results, is one we must keep in sight, while we turn to Prof. Bain's own account of "the link between feeling and action".

"At the outset," he says, "there happens a coincidence purely accidental between a pleasure and a movement (of Spontaneity) that maintains and increases it, or between a pain and a movement that alleviates or removes it; by the link of Self-conservation, the movement bringing pleasure or removing pain, is sustained and augmented. Should this happen repeatedly, an adhesive growth takes place, through which the feeling can afterwards command the movement" (p. 325). In other words:—At the outset a pleasure (say  $p$ ) and a movement (say  $k$ ) are presented together by chance and "after a few returns of the favourable accident the two are connected by an associating link" (p. 81). Now what is the difference in Prof. Bain's view between the feeling "commanding" the movement and the feeling "being associated with" the movement? The implications of the two phrases are widely different; and yet it looks as if we were to understand that, when an "adhesive growth" has taken place between a feeling  $p_1$ , and a movement  $k_1$ , between a feeling  $p_2$  and a movement  $k_2$ , and so on, we have then and there a "matured will". Still it must not be forgotten that "the distinctive aptitude of the mature will is to select at once the movements necessary to attain a pleasure," &c. (p. 325). Let us turn to some passage in which Prof. Bain formulates "the law of Self-conservation"; for there, if anywhere, we ought to find this link—outside and above mere associating links—which is "requisite" to connect feeling and action as distinct from particular sensations and movements. The following is as explicit as any:—"A state of pleasure, by its connexion with increased vitality in general, involves increased muscular activity in particular. A shock of pain, in lowering the collective forces of the system, saps the individual force of muscular movement" (p. 322). Here in addition to particular  $ps$  and  $ks$  we have "vitality in general" or "the collective forces of the system" as a new factor intervening between them; and this is our "human being": not a self in any psychological sense, but only an organism. If we are to avoid this confusion between the individual organism and the conscious subject who is

impelled or guided, who selects and controls, we must insist on being told the psychological equivalent of "vitality in general" or "the collective forces of the system".

But it will be best to scrutinise a little further the terms which Prof. Bain uses in speaking of feelings and movements; to do this will be tantamount to examining the terminology he uses of his first class of mental facts. The same confusing change of 'dimensions' and standpoints meets us here again. First of all we are told that Feelings ( $F_1$ ) divide into primary or Sensations (with muscular feelings) and secondary or Emotions, in which sensations have coalesced with one another and with ideas. But again we are told that "Feeling ( $F_2$ ) comprehends pleasures and pains and states of excitement that are neither" (p. 215). Now what connexion is there between these quite distinct classifications? Pleasures, pains and states of neutral excitement cannot be sensations, for then they would have to be referred to a definite sense-organ, according to the definition we have had of sensation; and they would not then cover emotions, for in these "the simple elements cease to be apparent". Moreover it seems possible to talk of "the pleasures and pains of sensations" and of "the feelings connected with emotions," and generally of "the emotional character of feeling". Thus a feeling being a conscious state, a feeling of a feeling must be a conscious state of a conscious state. It is a familiar law in symbolic logic that  $x^2 = x$ , square square is square, the red of red is red, &c.; but this law of simplicity will not hold of relations generally. A reader entirely ignorant of the subject-matter might then reasonably suspect that  $F_1$  and  $F_2$  refer to different things, and are not merely a different statement of the same. This difference would clearly appear on a careful comparison of (1) passages in which Prof. Bain speaks of Pleasure, Pain or Indifference or *the* state of pleasure, *the* state of pain, &c., with (2) passages in which he speaks of *a* pleasure, *a* pain or of pleasurable and painful sensations and emotions, &c. But we have no space for so much detail. What it comes to is simply this:  $F_1$  answers to presentations which a subject may be conscious of or attend to, while  $F_2$  is the state or mode of excitement of this subject that results:  $F_1$  is what the subject cognises,  $F_2$  is how he feels. It is only with reference to  $F_1$  that Prof. Bain can talk of "the intellectual character of feeling," and only with reference to  $F_2$  that he can talk of "the volitional character of feeling". This brings us to the other class of presentations, "muscular feelings," as to which, under cover of the unanalysed

term "muscular consciousness," we have found a similar distinction between the particular *ks*, which are presentations, and "the consciousness of energy put forth" in actualising these. Now, when explaining the volitional character of feeling, Prof. Bain no longer speaks of associative links between a feeling *p*, (*i.e.*, an instance of *F*<sub>1</sub>) and a movement *k*, nor even of this feeling commanding the movement. But he tells us "The Will is moved by the feelings; pleasure causing pursuit and pain avoidance"—feelings being here plainly *F*<sub>2</sub>. It is also plain that Will does not in this passage mean a sum of movements, but rather the subject that is conscious of making these movements, or of acting voluntarily, *i.e.*, under the influence of feeling consequent on, but distinct from, the mere presentations that make him feel.

To sum up : the contention is that Prof. Bain's exposition of the general features of mind involves substantially the same analysis as that made by the present writer,<sup>1</sup> but that the wavering and uncertain connotations of such terms as consciousness, feeling, will, volition, state, act, activity and the like have rendered any clear issue impossible. If we had any satisfactory system of expressing the varying implications of these abstract conceptions, much as physicists, *e.g.*, can express in terms of three fundamental units the dimensions of the quantities with which they deal, psychology would become comparatively plain sailing, though still beset with more difficulties than biology has to face.

Now let the reader imagine himself trying to deal *more physico* with the broad facts of mind as manifested throughout the entire range of animal life,—not as Prof. Bain does, only with "human knowledge, experience or consciousness,"—and it will not be long before the contrast of subject and object presents itself as fundamental. We can often form a distinct conception of the relation between two terms when we have no such distinct conception of the terms themselves. So here : without waiting to examine ontological theories we can ask how subject and object are related. We say of man, mouse or monkey that it feels, remembers, perceives, infers, desires, strives and so forth. Leaving aside the first term, which is ambiguous, it is obvious that all the rest imply activity and an object. The question then arises as to the possibility of resolving these instances and others like them into a form in which the diversity of the act appears as a diversity of the object. It

<sup>1</sup> See MIND, viii. 484.

is certain that the objects are different: thus in perception, *e.g.*, we deal with impressions, and in memory and imagination with ideas. It will therefore be a simplification if in place of a distinction of faculties as well as a difference of object we find a difference of object alone sufficient. The still wider difference between cognitive and conative acts—*i.e.*, between the intellectual and active powers of the older psychologists—seems to admit of similar reduction, when, taking the simplest cases of each, we remark that the objects of the one are sensations and those of the other movements. Supposing, then, there should prove to be an underlying sameness in all the variety of psychical acts, what is it? Starting from common language, there seem but two terms that could possibly denote this common element—Consciousness and Attention. The former is soon disposed of: in spite of its properly active signification, we have seen that it is frequently used in a passive sense, and when actively used its meaning is as often too wide as too narrow, ranging between the whole extent of the facts to be analysed and one of the most specialised of these, what we otherwise call internal perception, reflection, and less accurately self-consciousness.

Attention, on the other hand, has invariably an active sense, and there is an appropriate verb, to attend. Moreover, the figure involved, that of stretching or bending in some direction, while happy as a figure, does not, like 'conscious,' surreptitiously introduce what has to be analysed as itself an ultimate term of the analysis.<sup>1</sup> The objection to Attention is that it is too narrow: many things are presented, but few are attended to. If attention is to be made co-extensive with consciousness, the vital distinction between attention and inattention is lost, and it is but an ill way to advance knowledge to rob "the central word of discipline" of its essential meaning. But on the other side it may be urged that even in common parlance this is not the only use of the word; there is a generic sense of attention recognised as well. "'Attention' in the school and the army" is also known as a *concentration* of attention, and its absence as *relaxing* or *remitting* attention. As ordinarily used, then, attention implies a covert comparison; in other words, implies several degrees of attention in the wider sense. The pro-

<sup>1</sup> Any one curious to see some of the confusions resulting from this *διάλληλος λόγος* cannot do better than glance at the note "On Consciousness: its Conditions and Limitations" in Hamilton's edition of *Reid*, p. 933.

posal to use it absolutely or in this wider sense is very much like the proposal to use 'magnitude' or 'heat' (*i.e.*, temperature) in such fashion. Many an unsophisticated old lady would demur to one who described the minuteness of a snow crystal in terms of magnitude or its temperature as so many degrees of 'heat' (reckoning from absolute zero). What has been found necessary in these physical matters seems necessary here, and it will be as easy to get accustomed to the absolute sense in the one case as in the other. Fortunately Prof. Bain goes a long way towards admitting the want. "I make the fullest allowance," he says, "for the need of a general word to express the reaction of the Subject upon presentations," &c.; and he suggests "a still more general designation such as 'mental tension' or 'conscious intensity'." In both the root of attention is there; but if the remarks already made on what might be called the relationality of terms have any force, it is obvious that mental tension and conscious intensity cannot be equated to each other, and can neither of them express the reaction of the subject upon presentations.

But though Prof. Bain has nothing better to suggest, he animadverts none the less severely on the rashness and the presumption of the change proposed. "Before we bring forward a change in scientific nomenclature," he says, "we ought first to show that it is wanted, and next take the measure of our own influence or persuasive power for getting it adopted." As to the last, the writer is perfectly well aware that his personal influence is *nil*. So far as the advancement of knowledge goes, he is not, and never wishes to be, a person at all; but that the change in question is wanted he thinks he has done something to show. And after all it is not nearly so violent a change as Prof. Bain imagines. The recognition of all degrees of attention in everyday life has been referred to already. The following from Locke is also very much to the point:—

"The various attention of the mind in thinking. . . . That there are ideas, some or other, always present in the mind of a waking man, everyone's experience convinces him; though the mind employs itself about them with several degrees of attention. Sometimes the mind fixes itself with such intention<sup>1</sup> . . . . that it shuts out all other thoughts and takes no notice of the ordinary impressions made on the senses; . . . . at other

<sup>1</sup> In an earlier paragraph Locke distinguishes "intention or study" from mere attention: in the former the mind resists the solicitation of other ideas, in the latter such ideas as offer themselves are taken notice of as they pass; in fact, it is attention as it is in the school and the army, that Locke here calls intention.



times, it barely observes the train of ideas that succeed in the understanding without directing and pursuing any of them; and at other times, it lets them pass almost quite unregarded, as faint shadows that make no impression."—*Essay concerning Human Understanding*, ii. 19, sec. 3.

The last sentences of the next paragraph (sec. 4) are also interesting:—

"Since the mind can sensibly put on, at several times, several degrees of thinking [obviously here equivalent to attention in the section above], and be sometimes, even in a waking man, so remiss as to have thoughts dim and obscure to that degree that they are very little removed from none at all, and at last, in the dark retirement of sound sleep, loses the sight perfectly of all ideas whatsoever . . . I ask, whether it be not probable that thinking is the action, and not the essence of the soul? Since the operation of agents will easily admit of intention and remission; but the essences of things are not conceived capable of any such variation."

Locke then came very near indeed to a full and explicit recognition of attention in the sense which Prof. Bain scouts as an unwarranted change of nomenclature. But Hamilton comes nearer still; and could he but have freed himself from the trammels of the old Scottish psychology the change of nomenclature which is here defended might have been made under better auspices and long ago. The following passages from his *Lectures on Metaphysics* may be put in as evidence:—

"But to view attention as a special act of intelligence, and to distinguish it from consciousness, is utterly inept . . . we might, with equal justice, distinguish in the eye the adjustment of the pupil from the general organ of vision, as, in the mind, distinguish attention from consciousness as separate faculties. Attention is consciousness and something more . . . it is consciousness concentrated (i. p. 237). . . . It therefore appears to me the more correct doctrine to hold that there is no consciousness without attention—without concentration—but that attention is of three degrees or kinds. The first, a mere vital and irresistible act; the second, an act determined by desire, which, though involuntary, may be resisted by our will; the third, an act determined by a deliberate volition. An act of attention . . . seems thus necessary to every exertion of consciousness . . . [but] the mere vital or automatic act of attention has been refused the name; and *attention*, in contradistinction to this mere automatic contraction, given to the two other degrees, of which however Reid only recognises the third. . . . The faculty of attention is not, therefore, a special faculty, but merely consciousness acting under the law of limitation to which it is subjected" (i. 248).

That a writer for whom attention is only consciousness contracted or limited, and consciousness without such contraction or limitation is consciousness no longer, should find it needful to talk both of acts of attention and exertions of consciousness, is but one more proof of the perturbing influence of a bad terminology. Locke, who wrote before consciousness had been allowed to run wild over the whole

field of psychology, found the one action of attending or thinking sufficient. Between attentive consciousness and inattentive consciousness or consciousness simply there is, it is maintained, only a difference of degree. If we say that consciousness is an act and must have some intensity, that the more it is concentrated on some objects the more it is withdrawn from others, then this difference of degree is traced to a difference of distribution: the more we intensify our hold on A, the more we must relax our hold on B; but between the intension and the remission there is perfect continuity, and not a difference of kind. The act is one, and it is only in its relation to its effects on A and B that we are tempted to resolve it.

But it is not enough to contend that if there is one common factor in all psychical activity this factor is attention; to make out a case it is necessary to show directly that all the various faculties with which a mind can be endowed are resolvable into powers of attention and various classes or relations or states of presentations. In particular it is desirable to show that volition as well as intellection, about which there will be less question, is such a case. This has been attempted already in the second of the two former articles, but perhaps a brief re-statement in a somewhat different form may conduce to clearness. In as far as volition implies not merely action overt or intended but determination, whether by motives or in spite of them, in so far also it contains an element not resolvable into attention to motor presentations. This farther element, in fact, is that which Prof. Bain describes as "the volitional character of feeling": having once noted its presence, we may now leave it aside. Apart from the direct spring of action, then, the question is whether action in process is anything more than attention to a special class of objects. To depart as little as may be from current usage and to avoid Prof. Bain's charge of presumptuous meddling with the sacred ark of words, the question may be put in this fashion: Are apperception and innervation reducible to one (attention)? First of all, it is noteworthy that they have the same characteristics. Thus what Hamilton has called the law of limitation holds of each alike and of either with respect to the other; and it holds too not only of the number of presentations but also of the intensity. We can be absorbed in action just as much as in intuition or thought; also movements, unless mechanical, inhibit ideas, and *vice versa* ideas other than associated trains arrest movements. It is as impossible to lift a heavy weight and go on thinking as it is to

scrutinise the dot on an *i* and go on thinking. Intoxication, hypnotism or insanity, rest or exhaustion, tells on apperception as well as on innervation. The control of thoughts equally with the control of movements requires "effort"; and, as there is a strain peculiar to intently listening or gazing, which is known to have a muscular concomitant, so too there is a strain equally characteristic of recollection and visualisation, which may quite well turn out to be muscular too. When movements have to be associated the same continuous attention is called for as is found requisite to associate sensory impressions: when such associations have become very intimate dissociation is about equally difficult in both cases. The process of control is also, so far as we yet know, much the same: it is a process of direct repression or of alternative intensification, or a combination of both. One real difference there is, no doubt: movements ensue either through the withdrawal of inhibition or through a concentration of attention on the idea of the movement. The like, it need hardly be said, does not hold of sensations; though in abnormal cases there is an indefinitely close approach to it. "*If ifs and ans were pots and pans there'd be no trade for tinkers*"—nay, more, there'd be no trade for movements of any sort, except so far as these were pleasurable in themselves. It is just this difference in the objects that makes all the difference in our attitude, but it is not a difference in the psychical activity concerned with them.

There is further a supposed difference between apperception and innervation, or rather between what are assumed to be their physiological concomitants, which has stood in the way of their identification. Apperception is assumed to be related to afferent nerve-currents; and innervation, on the contrary, to efferent currents. Prof. Bain complains that in the article he criticises no notice is taken of this position. It is true no notice was taken, and for what seemed to be good reasons. In the first place, it is not a matter that concerns psychology proper at all. When psychologists as such are sure of their facts and neurologists in like manner sure of theirs, we may expect a great advance of knowledge from careful endeavours to correlate the two. A hopeful beginning has indeed already been made; but meanwhile the most disastrous confusion has befallen the more difficult inquiry through plausible but hasty interpretations of unverified physiological hypotheses. Psychologically we know nothing of nerve-currents, whether afferent or efferent. But in the next place, it is, to say the least, extremely questionable whether muscular efforts are the concomitant of what

Prof. Bain calls motor currents, and not rather of certain afferent excitations.<sup>1</sup> In any case it is not with these presentations, which accompany thinking and acting alike, but with effort in a still narrower sense that we are here concerned. It often requires more effort to make a slight exertion than a great one, much as it may require more effort to hear a faint sound than to hear a loud one. In this sense of mental effort or concentration, if one might venture a physiological guess on the strength of psychological data, it may turn out that both in apperception and in innervation the nerve-currents are what Prof. Bain calls motor, whether their function be comparable to that of accelerator, or to that of inhibitory, nerves, or to those of both.

There is one striking fact that brings to light the essential sameness of apperception and innervation which is cited by Wundt<sup>2</sup> for this very purpose. In reaction-time experiments it is found that if a signal precedes the impression to be registered by a suitable interval the reaction registering the impression is often instantaneous; the reaction-time, in other words, is *nil*. In such a case the subject is aware not of three separate acts, (1) apperceiving the impression, (2) reacting to it, (3) apperceiving the effect of the reaction, but is distinctly conscious of one act and one only. The anticipatory idea of the impression to be perceived and the idea of the movement to be executed are so adjusted that, when the preliminary signal is given, the impression is realised and the movement actualised at once and together. Wundt call this relation of the two ideas a "simultaneous association": the expression is scarcely a happy one, but at least the adjustment brought about is like an association, in so far as the two ideas are attended to as one complex.

It is a matter of quite secondary importance what name we give to this common element of activity present wherever we find consciousness or sentience. Provided the fact be recognised we shall not be long without an appropriate name for it. Meanwhile to call it 'attention' seems to do least violence to existing usage, and to have most precedents in its favour. The really important question is whether the contrast of Subject and Object is of such a fundamental character as to justify the resolution of psychological facts into two

<sup>1</sup> See on this the classic paper of Prof. W. James in *Anniversary Memoirs of the Boston Society of Natural History*, of which a brief summary will be found, *MIND*, v. 582; also Ferrier, *Functions of the Brain*, 2nd ed., pp. 382, ff.

<sup>2</sup> *Physiologische Psychologie*, ii. 239, 391.

entirely distinct categories—the one subjective faculty or function of Action-under-Feeling or Consciousness on the one side, and a Field of Consciousness, consisting of Objects, Ideas or Presentations, on the other. The older psychologies, with their legion of faculties, were no doubt unscientific, just as were the older physics with their legion of forces. But modern physicists have not abandoned the old conception of force altogether: they have only transformed it into the exacter conception of Energy. There is, however, a difference between psychology and physics that deserves notice, and to this we must turn for a moment.

The most important generalisations in psychology—as probably everybody will allow—are those included together as the Laws of Association. But these admit of a still more general treatment as the Laws or Theory of Presentations, under which head might be brought together the important results obtained by our own Associationist school and the equally important contribution of the Herbartian psychologists which are largely the complementary of ours. Now it was the Associationist psychology which in England gave the death-blow to the Scottish school with its interminable faculties; and a like fate befel the “*alte Vermögentheorie*” at the hands of the Herbartians in Germany. In this now dominant psychology of presentations—“*Psychologie ohne Seele*,” as Lange calls it—we are led to recognise only interaction of presentations *inter se*: ideas tend to attract or repel each other; they associate and they conflict: in short, as Herbart roundly put it, we have in them a psychical statics and dynamics, and these, as he thought, admit of a mathematical treatment. The activity underlying the old terms ‘faculty,’ ‘power,’ &c., which was formerly referred to the subject, here reappears on the side of the object. Hence then the attempt to explain everything in terms of the interaction of presentations. We have this pushed to the utmost in Herbart’s own psychology with that speculative thoroughness so characteristic of the master minds among our Teutonic brethren. It would not be difficult to show that the metaphysical theory of “self-preservation” which Herbart developed makes no material difference to the general character of his psychology as here described. In Prof. Bain and in J. S. Mill the same tendency is apparent, but in them systematic thoroughness is sacrificed to regard for facts, which is said—for better, for worse—to be the peculiarly British trait. Now comes the question:—Can we, provided we credit presentations—or perhaps it will be fairer to say ‘ideas,’ since presentation in this connexion may be thought to have a treacherous ring—can we, if ideas are credited with certain

mutual attractions, repulsions, associations, complications, &c., &c.—dispense with the postulation of a subject altogether, at least any subject but that very complex idea which is “generated” under appropriate circumstances when ideas are grouped with sufficient distinctness? Whatever our sentimental preferences may be, it is hard to see any scientific objection to such an attempt if only it could succeed. The one question to be asked then is: Can it? Perhaps we shall find an answer to this question in the course of examining the line of argument developed by Mr. Bradley in the article to which Prof. Bain has referred.

As already said, it is difficult to seize the precise point of Mr. Bradley’s contention: though avowedly polemical, his article is for the most part in agreement with what are styled the latest results of modern psychology; it is, in fact, very largely but an able restatement of an able note by J. S. Mill (James Mill’s *Analysis*, ii. 372-377). Taking attention to mean “predominance in consciousness,” whatever it may be besides, Mr. Bradley inquires “how we are able to produce this condition or what is the machinery which effects the production”. Now at the outset at all events, that is to say, in the statement of his question, Mr. Bradley tacitly admits the distinction between the conscious subject on the one hand, the “we who are able to produce,” and the field of consciousness on the other, in which this or that object may become predominant. Further, a machine, whether simple or complex, is not itself a motive power, but only a means of directing or modifying or economically expending such power. Nobody now-a-days supposes that in producing the predominance at any given moment of any given presentation any special instrumentality is employed distinct from “the working of the ordinary laws of reintegration, blending,” &c., or however else it may seem fit to denote the various interactions of objects. Neither, it may be safely said, is any student moderately versed in modern psychology likely to urge the objection that an idea of an idea is not admissible, or to find any difficulty in comprehending that “the idea of myself somehow engaged” will, provided it is interesting—of which more anon—produce its effect in the ordinary way. Where “the mass of psychologists” who ignore all this, or fail to comprehend it, are to be found, is best known to Mr. Bradley.

But now, granting that wherever there is predominance in the field of consciousness there is attention, and conversely; granting too that even the resolve to attend “produces in the common psychological way the means to its realisation,” viz., through the idea of self-attending; and granting &

*fortiori* that the like holds of simpler cases;—we have to ask what are the characteristics of an idea that “predominates in consciousness” or “engrosses the mind”. A glance at Mr. Bradley’s article, or at the pages of J. S. Mill which he cites, will show that the dominating idea, to use Mill’s terms, is (1) “highly pleasurable or painful,” and (2) “tends, more or less strongly, to exclude from consciousness all other sensations less pleasurable or painful than itself and to prevent the rising up of any ideas but those which itself recalls by its associations”. Perhaps for brevity and distinctness’ sake we may call the first its *apolaustic* and the second its *dynamic* character. The two are doubtless most intimately connected; the question is—Can they be resolved into one? or, rather, Can the first be reduced to the second? Referring again to our authors, we shall find that, though these two characteristics are frequently confounded, there is always in the first a more or less explicit recognition of the distinction of subject and object. The dominating presentation affects other presentations by its intensity, its alliances, and so forth; it affects the subject by the pleasure or pain it affords. When, *e.g.*, Mr. Bradley speaks of attention as predominance in consciousness, he has the first effect in view; when he speaks of attention as consisting in interest, he has the second; for “what interests,” he tells us, “does so by means of pleasure and pain”.

There is no meaning in saying that one presentation pleases or pains another presentation, or that the idea of winning the prize interests the idea of running the race. It is however perfectly intelligible to say, as J. S. Mill does, that “becoming a nearly exclusive object of consciousness, it (*viz.*, a pleasurable or painful idea) is both felt with greater intensity and acquires greater power of calling up by association other ideas. There is an increase both in the multitude, the intensity and the distinctness of the ideas it suggests, as is always the case where the suggesting sensation or idea is increased in intensity.”

But now how does the pleasurable or painful idea come by this intensity, if we, as for simplicity’s sake we may, take its intensity as its dynamic index? This, it must be frankly owned, looks a difficult question. It is matter of common observation that the apolaustic quality of a presentation is largely determined by its intensity; to say, then, that its intensity is due to its apolaustic quality seems like arguing in a circle, or, if not that, is tantamount to identifying the two, as in fact our authors come very near to doing. Before looking for a way out of this difficulty it may be well to remark that there is one obvious consideration that forbids their



identification, *viz.*, the existence of a singular point, or a *point d'arrêt*, in what we may call the feeling-curve, where intense pleasure passes more or less abruptly into intense pain, while the intensity of the presentation continues to increase.<sup>1</sup> The real solution of the difficulty is more probably to be found in the distinction of the receptive and reactive phases of conscious activity,<sup>2</sup> or non-voluntary and voluntary attention, including in this last, spite of the paradox, involuntary attention as well. There is unfortunately much uncertainty in the use of this term 'voluntary'. It is here used in the sense in which Prof. Bain uses it, *viz.*, for all cases of interest, immediate and mediate as well. "The first," as he says, "is the voluntary impulse in its purest, most primitive and perennial aspect; to hug a pleasant idea is as purely instinctive and untaught as anything can be; the higher apparatus of the will—as expressed by resolution, deliberation, purpose—has no part in it" (MIND, xi. 477). J. S. Mill, on the other hand, as the following sentence will show, confines the term voluntary to cases of mediate interest:—"Ideas which are not of themselves so painful or pleasurable as to fix the attention may have it fixed on them by a voluntary act" (*l. c.* p. 373). In so doing he is at one with most earlier writers, and apparently with Mr. Bradley.

It is important to examine carefully the "primitive aspect" of the voluntary impulse, inasmuch as the essential character of volition is more likely to be apparent in it than in "the higher apparatus of the will," where it is overlaid by complications. If this be sound in point of method, it is then worth notice that the primitive outcome of feeling is muscular movement, and we are therefore prompted to inquire whether all volition, that is to say, all voluntary attention, is not of the nature of movement. Prof. Bain comes very near to such a generalisation, which indeed to the present writer seems a sound one, though this is not the place for a detailed array of proofs. But if all voluntary attention is of the nature of movement it will not do to call such movement muscular. It is unfortunate that the term "muscular" has got such a hold on us: psychologically, muscles are as great an impertinence as nerves; we know nothing of either. The common fact in all voluntary action alike seems to be a change in the distribution of attention under the influence of feeling: in the earliest forms of it

<sup>1</sup> Cp. Wundt, *Physiologische Psychologie*, i. 468.

<sup>2</sup> Against this distinction Mr. Bradley is moved to protest, on the ground that "it breaks up the life of the soul and divides it into active and passive factors". Such a travesty of the facts is indeed a short and ready way of disposing of one of the oldest and most obvious distinctions in all psychology.

this change brings about bodily movements, whereby, sooner or later and more or less indirectly, pleasurable sensations are reinforced or prolonged; at a later stage such change seems to lead directly to an increase in the intensity and fixation of some selected portion of the ideational train. As to the bodily movements, these, wherever observation is possible, seem to result from a concentration of attention upon the idea of the movement, or generally upon what the writer has ventured to speak of as the motor continuum. As to the intellectual movements, these seem with equal certainty to result from a concentration of attention upon the second variety of what Mr. Bradley calls the idea of an idea—*viz.*, that “the reality of which is my psychical state as I have this idea” (MIND, xi. 313). But such an idea it is contended is also, psychologically, a motor idea, though its physiological counterpart is almost certainly not in any sense a muscular movement.

But changes in the distribution of attention, it may be objected, are just what we have in non-voluntary attention: these are just the changes that the ordinary psychological law will explain. Precisely; but the distinctive peculiarity of voluntary attention is a change in the distribution of attention *as regards motor presentations*, the effect of which change is a change in the intensity of what were the objects of non-voluntary attention. Unless then it can be said that pleasure and pain are a species of idea, and unless, further, it can be shown that the sequence of movement on feeling is like the sequence of (say) thunder and lightning, a merely physical fact, we must look beyond the psycho-dynamical laws of association, fusion, &c., for an explanation of what the writer has called subjective selection or interest. And if this be so, it is not enough for psychology to recognise no kind of “activity at all beyond the common processes of redintegration and blending” (MIND, xi. 316).<sup>1</sup> How the intensity that presentations have apart from volition is related to that which they have by means of it—how the objective component is related to the subjective, is a hard problem; still there is no gain in a spurious simplicity that ignores the difference.

But there is still one point raised by Mr. Bradley's very acute criticisms which ought not to be left unnoticed. He seems to allow the possibility that a psychical event which

<sup>1</sup> Of course it must not be forgotten that the state of integration and coalition, in which given presentations may exist at a certain stage, is largely the result of previous acts of voluntary attention, though afterwards independent of such acts.

we cannot analyse may be a necessary link in the process of attending, but maintains that we have still no warrant for such a supposition ; because at the stage where activity " is recognised and is felt as such we can see at once its composite character ". Thereupon he proceeds to ascertain the conditions under which this recognition of activity arises. On all this there is only space for three brief remarks. First, it is misleading to apply the phrase " psychical event " to attention if attention is an unanalysable element in every psychical event. It is obviously impossible that what is a constituent in every psychical event can be explicable in terms of psychical events, and the demand for such an explanation amounts logically to a tacit denial of any heterogeneity in mind at all. Matter may be infinitely divisible, but it does not therefore follow that a watch is made of watches. Secondly, Mr. Bradley is doubtless well aware of the difference between the simplicity of an idea and the idea of simplicity, between the complexity necessarily involved in the idea of the simplest relation, and the simplicity of the relation as an actual fact. Yet all that he does is to show that our conception of activity is complex, not that action itself is so ; nor does he succeed in resolving activity itself into a mere interaction of presentations *inter se*. This brings us, thirdly, to his account of the origin of what he calls the feeling of activity—one might say, to his attempt to explain it away. In this he makes certain assumptions which seem to surrender the entire position contended for. The account is substantially a *résumé* of what Herbartian psychologists, such as Nahlowsky and Waitz, offer as an analysis of the so-called " formal feelings," and except for the preliminary assumptions has little relevance to our question at all. Here they are :—

" I have to assume the doctrine that of our psychical contents a certain group is closely united, and is connected in a very special manner with pleasure and pain, and that this group is the first appearance of our self. I have to assume again that this psychical mass, with its connexions, is perpetually growing larger and smaller as against other contents. And I must assume once more that the expansion gives *in general* a feeling of pleasure, while contraction brings pain, and that we may call these the two chief modes of self-feeling" (MIND xi. 319).

Now it is easy to see that the " first appearance of our self " means not the first beginning of the conscious subject but that stage " in the growth of the soul " at which the conscious subject acquires the idea of self, becomes, as we say, self-conscious. It is also clear that pleasure and pain are not actual constituents of this " first appearance of self," but, as we are told, are connected with it, inasmuch as certain changes in this group *bring* or *give* (to the conscious

subject) a feeling, which is pleasure or pain according to circumstances. The subject of this feeling is in general pleased when the psychical mass that constitutes the first appearance of self expands, and pained in general when this psychical mass contracts; and the expansion or contraction of "the group of the self" is to be understood as relative to a concomitant contraction or expansion of the rest of our psychical contents, *i.e.*, the not-self. But why should the expansion of the one portion give or bring pleasure rather than the expansion of the other? Both are so far nothing but groups of ideas. The author tells us two things about the pleasurable expansion: (1) it "is *not* the consciousness of activity"—this is only its delusive interpretation; but (2) it merely is and is felt in a certain way. Here again, as in the case of the conscious subject and "the first appearance of self," we have the old distinction of subjective fact and objective reflexion; only that in this case we are expressly warned that the mirror is false. But is it? What then are we to make of the following sentence? "We are active, when the not-self . . . changes in the presence of an idea, and (I will add) [a most important addition] *a desire of that change within the self*" (p. 320). The change in the not-self we may fairly take to be a contraction: as to the desire, Mr. Bradley has not analysed this for us; but it seems plain that he regards it also as pertaining to the subject that feels, and not to that group of our psychical contents that forms the appearance of self. Thus we have the conscious subject and the psychical contents of which it is conscious "connected" first by pleasure and pain, and secondly by desire, *i.e.*, first by feeling and secondly by action. Add to this that the contraction is spoken of as implying resistance, and that "in getting the idea of self-expansion the muscular element is most important". Yet for all this the conception of activity is only an intellectual construction: "in fact, of course, being nothing at all". How does Mr. Bradley propose to convince us of this not very evident conclusion? By a judicious use of the words facts and events: "In all this, he says, there is a happening—a happening of events; there is nothing beside facts coexistent and successive with the result of other facts. And I think in this way we could give throughout psychology a definite meaning to action and passivity." With some reserve on the point of definiteness, no doubt, we shall all agree. Not only psychology but most other things can be explained after this fashion, but what is a fact? And how is the reality of activity affected by an empty generalisation of everything into happenings and facts?

## IV.—RESEARCH.

### EXPERIMENTS ON THE ASSOCIATION OF IDEAS.

By JAMES McKEEN CATTELL, Ph.D.

The Association of Ideas has been a favourite subject with psychologists from Aristotle on, yet the results have not been very definite from the scientific point of view. An important paper by Mr. Galton<sup>1</sup> first applied experimental methods to the subject, and put it in a way where scientific advance was possible. Professor Wundt at once saw the importance of this work, and took it up in his laboratory with improved apparatus and methods.<sup>2</sup> Nothing further has, however, been published on the subject, which is a pity, as experimental psychology seems to have its most hopeful outlook in this direction.

Experiments I described in a paper contributed to MIND, Nos. 42-4, on "The Time taken up by Cerebral Operations," showed that about  $\frac{2}{3}$  sec. was needed to see and name a word. When the physiological factors and the time taken up in seeing the word were eliminated, it was found that about  $\frac{1}{10}$  sec. was spent in finding the name belonging to the printed symbol. The time was longer for letters, which we do not read as often as words, and still longer (about  $\frac{1}{4}$  sec.) for colours and pictures. I called the time passing, while the motor expression was being found, a 'Will-time'. The process is, however, largely automatic, and consists in carrying out an association previously formed between the concept and the expression. There is no break between such a process and the other processes I am about to describe.

#### I.

If an object is named in a foreign instead of in one's native language, the association between concept and expression is less intimate and takes up more time. It is an open question as to how far concepts are formed without the aid of words, and it is not evident what mental process takes place when an object is named in a foreign language, it depending, of course, on the familiarity of the language. It need scarcely be said that we know almost nothing as to the physical basis of memory and thought; we may hope that psychometric experiments, such as I am about to describe, will contribute something toward the study of this subject. In the paper above mentioned I showed how we can determine the time it takes to see and name the picture of an object; in like manner the time we need to name

<sup>1</sup> *Brain*, 1879; cp. MIND, iv. 551.

<sup>2</sup> *Physiologische Psychologie*, c. xvi.; *Philosophische Studien*, i. 1.

the picture in a foreign language can be measured. I must refer the reader to that paper for a detailed account of apparatus and methods. .001 sec. is taken as the unit of time,  $\sigma$  being used as its symbol. B (Dr. G. O. Berger) and C (the writer) are the two subjects; after these designations there is given the average time taken in all the experiments made, and the mean variation of these measurements from the average; after this is given a second average and mean variation, found by dropping the most irregular times in accordance with the method I have described.<sup>1</sup> The number of experiments made on each subject is given in parenthesis. The experiments were made at Leipsic during the first half of the year 1885.

I give first the time it took the subjects to recognise the pictures of twenty-six familiar objects, and name them in a foreign language—B in English, C in German.

*Pictures named in Foreign Language (78).*

|   |     |     |     |    |   |     |    |     |    |
|---|-----|-----|-----|----|---|-----|----|-----|----|
| B | 649 | 104 | 632 | 49 | C | 694 | 87 | 682 | 43 |
|---|-----|-----|-----|----|---|-----|----|-----|----|

It has been shown<sup>2</sup> that B took 477, C 545 $\sigma$  to see and name these same pictures in their native languages. B consequently needed 172, C 149 $\sigma$  in addition to find the name in a foreign language. C talks German readily, B English less so. These should be compared with other experiments I have made showing that the rate at which a person can read a foreign language is proportional to his familiarity with the language.<sup>3</sup>

We go a step further when a word must be translated from one language into another. The mental operation is again obscure, the processes of translating and naming not being sharply defined; but if we subtract the time it takes to see and name a word from the time it takes to see a word, to translate it into a foreign language and name it, we get approximately the time of translation. This time I give for translating from a foreign into the native language, and in the reverse direction. I have subtracted the time it takes the subjects to see and name words (B 390, C 428 $\sigma$ ), and the mean variation (B 28, C 20; in the corrected series, B 19, C 13 $\sigma$ ).

*English-German: Short (Common) Words (78).*

|   |     |    |     |    |   |     |    |     |    |
|---|-----|----|-----|----|---|-----|----|-----|----|
| B | 240 | 77 | 199 | 36 | C | 258 | 59 | 237 | 29 |
|---|-----|----|-----|----|---|-----|----|-----|----|

<sup>1</sup> MIND, xi. 229. It will be noticed that the corrected averages are usually smaller than the averages from all the determinations; this is because the subject found difficulty in a few cases. The uncorrected value gives the average time taken up by associations; the corrected average more nearly the time usually taken up by associations.

<sup>2</sup> MIND, xi. 533.

<sup>3</sup> *Phil. Studien*, ii. 635; Abstract in MIND, xi. 63. I hope shortly to print an account of experiments showing the increasing rapidity with which the classes of a German gymnasium can read Latin.

|  |     |     |     |     |     |     |    |
|--|-----|-----|-----|-----|-----|-----|----|
| <i>English-German : Long (Less Familiar) Words (78).</i> |     |     |     |     |     |     |    |
| 331  | 96  | 309 | 67  | 388 | 101 | 367 | 62 |
| <i>German-English : Short Words (78).</i>                |     |     |     |     |     |     |    |
| 303  | 148 | 237 | 53  | 152 | 17  | 153 | 13 |
| <i>German-English : Long Words (78).</i>                 |     |     |     |     |     |     |    |
| 593  | 281 | 573 | 116 | 411 | 85  | 389 | 55 |

These numbers show that foreign languages take up much time even after they have been learned, and may lead us once more to weigh the gain and loss of a polyglot mental life.

## II.

A great part of our time is spent in calling to mind things we already know. Memory is no transcendental process outside of space and time; this paper shows just how much time it takes to remember, and we have every reason to believe that the time passes while certain changes in the brain call forth other changes. I give below the time it took B and C to remember certain facts, examples of the necessary associations with which the mind is continually busy. A well-known city was given, and the subject named the country in which it is situated; a month was given, and the season to which it belongs was named, and in like manner the preceding or following month; an eminent author was given, and the subject named the language in which he wrote; a distinguished man, and his calling was named. In the last two cases below, the subject respectively added and multiplied numbers of one place. At first sight this mental operation may seem to consist of a mathematical calculation, and to be altogether different from the others; it is however not unlike them, being essentially an act of memory.

|                                    |     |     |     |     |   |     |     |     |     |
|------------------------------------|-----|-----|-----|-----|---|-----|-----|-----|-----|
| <i>City-Country (52).</i>          |     |     |     |     |   |     |     |     |     |
| B                                  | 348 | 53  | 333 | 35  | C | 462 | 120 | 413 | 65  |
| <i>Month-Season (26).</i>          |     |     |     |     |   |     |     |     |     |
|                                    | 415 | 55  | 410 | 31  |   | 310 | 63  | 306 | 16  |
| <i>Month-Following Month (26).</i> |     |     |     |     |   |     |     |     |     |
|                                    | 345 | 45  | 327 | 25  |   | 389 | 172 | 384 | 61  |
| <i>Month-Preceding Month (26).</i> |     |     |     |     |   |     |     |     |     |
|                                    | 763 | 245 | 619 | 129 |   | 832 | 233 | 815 | 160 |
| <i>Author-Language (78).</i>       |     |     |     |     |   |     |     |     |     |
|                                    | 417 | 80  | 402 | 53  |   | 350 | 57  | 337 | 32  |
| <i>Man-Calling (78).</i>           |     |     |     |     |   |     |     |     |     |
|                                    | 465 | 89  | 440 | 62  |   | 368 | 95  | 326 | 53  |
| <i>Addition (52).</i>              |     |     |     |     |   |     |     |     |     |
|                                    | 221 | 46  | 223 | 23  |   | 336 | 77  | 299 | 36  |
| <i>Multiplication (52).</i>        |     |     |     |     |   |     |     |     |     |
|                                    | 389 | 71  | 369 | 38  |   | 544 | 225 | 507 | 158 |



The mental processes considered above are by no means invented for the sake of experiment, but are such as make up a considerable part of life. We see that it took the subjects  $\frac{2}{3}$  to  $\frac{4}{5}$  sec. to call to mind facts with which they were familiar. The times needed in the different cases are of interest. The time of addition was the shortest of all; B needed 168, C 208 $\sigma$  longer to multiply than to add; it took twice as long to call to mind the foregoing as the following month. It will be noticed that the times of the two subjects correspond closely (the average time in the eight examples given is 420 $\sigma$  for B, 436 for C); the differences of time in the several cases are explained by the character and pursuits of the subjects, and in turn throw light back upon these. For example, B is a teacher of mathematics, C has busied himself more with literature; C knows quite as well as B that  $5+7=12$ , yet he needs  $\frac{1}{10}$  sec. longer to call it to mind; B knows quite as well as C that Dante was a poet, but needs  $\frac{1}{10}$  sec. longer to think of it. Such experiments lay bare the mental life in a way that is startling and not always gratifying.

The numbers given are the averages from many measurements; the mean variation shows how greatly the separate determinations vary from the average. This variation is partly owing to changing conditions of the brain, so that the same process never takes exactly the same time; it is, however, largely due to the fact that the mental operations under the same class are not equally simple, and consequently require different times. Just as it takes less time to add 2 to 3 than to multiply 2 by 3, so it takes less time to add 2 to 3 than to add 6 to 7. Owing to the normal variation in the time of the same mental process, we should not place too much reliance on a small number of measurements; it will, however, be worth our while to notice a few examples. In giving the country in which the city is situated, as average of three trials, both B and C took the shortest time for Paris (212, 278 $\sigma$ ), and the longest time for Geneva (403, 485 $\sigma$ ). In giving the language in which an author wrote, as average of the three trials, B took the shortest time for Luther (227) and Goethe (265), and the longest for Aristotle (591) and Bacon (565); C took the shortest time for Plato (224) and Shakespeare (258), the longest for Chaucer (503) and Plautus (478). In the case of Luther B took 244, in the case of Goethe 102 $\sigma$  less time than C; in the case of Shakespeare C took 186 $\sigma$  less time than B. It should be borne in mind that B is a German, C an American. In giving the calling of eminent men the order was as follows, the shortest times being placed first:—B—Poet (355), Warrior, Historian, Philosopher, Artist, Reformer, Man of Science (657); C—Poet (291), Artist, Historian, Warrior, Philosopher, Reformer, Man of Science (421). With both subjects Poet comes first and Man of Science last. It is easier to think of Homer as a poet than of Darwin as a man of science.

## III.

In the experiments so far considered a question was asked which admitted but one answer: the association was necessary, and the interval passing while it was being formed might be called a 'Recollection-time'. A question can, however, be so arranged that beside the act of recollection a certain choice as to the answer must be made, and in this case a little more time is needed. Below is given the inverse of several of the cases we have considered; a country being given, some city situated in it had to be named, &c. The last line gives the time needed to think of a work by a given author.

|                              |      |     |      |     |   |     |     |     |     |
|------------------------------|------|-----|------|-----|---|-----|-----|-----|-----|
| <i>Country-City (26).</i>    |      |     |      |     |   |     |     |     |     |
| B                            | 400  | 72  | 357  | 45  | C | 346 | 75  | 340 | 48  |
| <i>Season-Month (26).</i>    |      |     |      |     |   |     |     |     |     |
|                              | 561  | 92  | 548  | 36  |   | 435 | 99  | 399 | 54  |
| <i>Language-Author (78).</i> |      |     |      |     |   |     |     |     |     |
|                              | 663  | 200 | 702  | 110 |   | 519 | 137 | 523 | 83  |
| <i>Author-Work (26).</i>     |      |     |      |     |   |     |     |     |     |
|                              | 1076 | 397 | 1095 | 287 |   | 763 | 308 | 596 | 127 |

It will be seen that it took no longer to name a city when the country was given than the reverse; in this case there was but little choice, as there is in each country one particular city which was named almost as a matter of course. It took, however, considerably longer to name a month when the season was given and an author when a language was given than the reverse. A choice had in the former case to be made, and further, as Steintal has before remarked,<sup>1</sup> the mind moves more readily from the part to the whole than from the whole to the part. It will be noticed that the naming a work by a given author is one of the most difficult associations considered in this paper. As to the time taken up by the separate associations, I must again call attention to the fact that it is largely determined by accidental variation. This variation could only be eliminated by making a large number of experiments, and in this case we should no longer have the time taken up by associations in our daily life, but the minimum recollection-time, which would tend to become the same for different classes of associations as they became equally familiar. In naming a city, C needed the longest time for Brussels (1042) and Pekin (1001); the shortest time for Athens (214) and Philadelphia (222), his home. In naming an author, less time was needed for English, German and Italian, where Shakespeare, Goethe and Dante at once occurred, than in the three other languages used, French, Latin and Greek. In naming a work by a given author C needed the

<sup>1</sup> *Einleitung in die Psychologie und Sprachwissenschaft*, p. 161.

longest time for Chaucer (*Canterbury Tales* 1898), Aristotle (*Logic* [sic] 1522), and Bacon (*Novum Organum* 1388); the shortest time for Milton (*Paradise Lost* 328), Dante (*Inferno* 373), and Goethe (*Faust* 393).

## IV.

We now come to consider certain classes of associations in which the mind is allowed a larger degree of liberty. The times required in eight such cases are given. A noun representing a class of objects was given and a particular example was named (river-Rhine); a picture of an object was shown, and instead of naming the entire picture the subject was required to select some part of the object and name it (picture of a ship-sail); a concrete noun was in the same way given and a part of the object was named: both the pictures and names of objects were shown, and the subject said what the thing is used for or what it does (horse-ride or trot); a substantive had to be found for an adjective (blue-sky), a subject for an intransitive (swim-fish) and an object for a transitive verb (write-letter).

|   |     |     |     |     |   |     |     |     |     |
|---|-----|-----|-----|-----|---|-----|-----|-----|-----|
| <i>Thing-Example</i> (52).              |     |     |     |     |   |     |     |     |     |
| B                                       | 727 | 216 | 663 | 102 | C | 537 | 179 | 457 | 95  |
| <i>Picture-Part of Object</i> (52).     |     |     |     |     |   |     |     |     |     |
|   | 399 | 96  | 368 | 40  |   | 447 | 162 | 415 | 69  |
| <i>Substantive-Part of Object</i> (26). |     |     |     |     |   |     |     |     |     |
|   | 578 | 128 | 568 | 85  |   | 439 | 135 | 404 | 82  |
| <i>Picture-Property</i> (52).           |     |     |     |     |   |     |     |     |     |
|   | 358 | 105 | 325 | 49  |   | 372 | 121 | 370 | 78  |
| <i>Substantive-Property</i> (26).       |     |     |     |     |   |     |     |     |     |
|   | 436 | 157 | 390 | 109 |   | 337 | 100 | 291 | 69  |
| <i>Adjective-Substantive</i> (26).      |     |     |     |     |   |     |     |     |     |
|   | 879 | 278 | 823 | 186 |   | 351 | 86  | 307 | 41  |
| <i>Verb-Subject</i> (26).               |     |     |     |     |   |     |     |     |     |
|   | 765 | 366 | 584 | 166 |   | 527 | 171 | 497 | 107 |
| <i>Verb-Object</i> (26).                |     |     |     |     |   |     |     |     |     |
|   | 654 | 242 | 561 | 139 |   | 379 | 122 | 317 | 86  |

The times given need no long comment. The most difficult associations seem to be the finding of a special example when the class is given, and the subject for a verb; in both of these cases the times needed were irregular, as is shown by the large mean variation. B took 111, C 146 $\sigma$  longer to find a subject than to find an object for a verb, the mind moving logically in the latter direction. In identifying a particular object the mind was inclined to choose either one immediately at hand or to go back to the home of childhood. Thus out of the 52 cases B thought of an object

in the room 8, C 20 times;<sup>1</sup> of objects identified with the early home B 22, C 19 times. In the other cases this was mostly impossible, but also here either a very recent or an early association was formed in all except 6 out of the 104 cases.

## V.

We have lastly to consider the time it takes to form a judgment or opinion. I choose three cases in which the results could conveniently be averaged. In the first case the subject estimated the length of a line drawn horizontally on a card 10 cm. long, 50 lines being used varying in length from 1 to 50 mm. In the second case the subject estimated the number of short perpendicular lines on a card,<sup>2</sup> the number varying between 4 and 15. In the third case the names of two eminent men were shown, and the subject decided which of them he thought to be the greater.

| <i>Length of Line (150).</i> |     |      |     |       |     |     |     |
|------------------------------|-----|------|-----|-------|-----|-----|-----|
| B 1124                       | 242 | 1127 | 154 | C 664 | 124 | 664 | 88  |
| <i>Number of Lines (26).</i> |     |      |     |       |     |     |     |
| 183                          | 57  | 180  | 35  | 319   | 74  | 313 | 45  |
| <i>Eminent Men (104).</i>    |     |      |     |       |     |     |     |
| 667                          | 143 | 604  | 80  | 558   | 171 | 522 | 112 |

I made rather a large number of determinations with the lines, as I wished to find the ratio between the length of the line and the average error (psychophysical law), and between the error and the time taken up in coming to a decision. I think it however desirable to still further increase the number of experiments before publishing the results. In judging as to the relative greatness of eminent men, as might be foreseen, the times were shortest where the judgment was easiest, more especially if the subject had already compared the men together (Homer, Virgil). The nature of the judgments is not without interest, but can better be considered when I come to print similar experiments which I have made on a larger number of subjects.

The associations we have been considering in this paper are in their nature fixed or limited, and we have concerned ourselves chiefly with the time taken up. The conditions of the experiment can however be so arranged that one idea is allowed to suggest another somewhat as in our ordinary thinking. I shall shortly have ready experiments in this direction in which both the time and the nature of the association will be considered.

<sup>1</sup> The experiments were made in C's room.

<sup>2</sup> For experiments on the Limits of Consciousness see Cattell, *Phil. Studien*, iii. 94.

## EXPERIMENTS ON "PREHENSION".

By JOSEPH JACOBS.<sup>1</sup>

It is obvious that there is a limit to the power of reproducing sounds accurately. Anyone can say *Bo* after once hearing it: few could catch the name of the Greek statesman M. Papamichalopoulos without the need of a repetition. It is here attempted to ascertain the normal limits of such reproduction in various circumstances and under varying conditions. At first experiments were made with nonsense-syllables like *crat-forg-mul-tal-nop*, as suggested by Ebbinghaus's experiments. It was found, however, that the syllables used varied greatly in relative difficulty of pronunciation and in relative facility of rhythm. After a few trials they were abandoned for letters (omitting "double u") and numerals (omitting "seven" as dissyllabic). It was found on the whole that the facility of reproducing the different kinds of sounds, after once hearing them, went together in a tolerably constant ratio. Thus a number of school-girls who could repeat on an average 6.1 nonsense-syllables could repeat 7.3 letters and 9.3 numerals. The explanation for this order of difficulty is not far to seek. The syllables, as contrasted with numerals and letters, are new to the hearer, have to be learnt, and absorb more energy; then, again, their grotesqueness would distract the attention more. The comparative difficulty of reproducing letters as compared with numerals is not so obvious. Reading accustoms us to take letters in groups having a phonetic value, and collocations of consonants like *bsvlrtm* strike us in a minor degree with the same sense of incongruity which prevents our minds from easily assimilating a conjunction like *dak-mil-tak-bin-roz*. Numerals, on the other hand, have few, if any, associations of contiguity, and we are accustomed to find them in haphazard order. Finally, our expectant attention has only to search among nine numerals, whereas it has to be ready to select from twenty-five letters. School-habits, however, might modify these conditions, and the cases were not infrequent in which the limit for letters was higher than for numerals: thus in one set of schoolboys no less than 14 boys out of 88 could repeat more letters than they could numerals, while 33 of the remainder had the same limit for both.

<sup>1</sup> The following investigation was made with the co-operation and advice of a circle of inquirers interested in psychological science, among whom should be mentioned, in the present connexion, Mr. J. Sully and Mr. Carveth Read but especially Mrs. S. Bryant, D.Sc., who obtained the results from the North London Collegiate School and made many valuable suggestions both in the part of the investigation now presented and that still in hand.

Numerals have the further advantage that school-children are accustomed to take them down from dictation, and this leads us to deal with the *modus operandi* adopted in obtaining our results. It was necessary, in the first place, to adopt some uniform rate at which the dictation should be given, as the power of apprehension varied with the rate of utterance. A sound every half-second was found to be a convenient rate, and a little practice with a metronome beating twice a second gives the experimenter a sense of the proper interval. The repetition was in the first experiments oral, but afterwards was taken in written form. If possible, two sets of the series of sounds should be given, and the highest number correctly reproduced is to be regarded as the limit which we wish to find, and which we term here the *span*. The reading should be in a monotonous tone, so as not to give any perceptible accent or rhythm, either of which, it appeared, assists the power of repetition in a considerable degree. The papers, when handed in, were marked with the names of the "subjects," to which it was found useful to add their ages and, if possible, their places in form.

Early in the inquiry it became evident that the power of reproducing a number of sounds increased steadily with age. Our materials enable us to draw up the following Table, which clearly shows the increasing power of school-girls in mastering nonsense-syllables as they grow older :—

|                         |     |     |     |     |     |     |     |     |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Age, . . . . .          | 11  | 12  | 13  | 14  | 17  | 18  | 19  | 20  |
| Number of "Subjects," . | 3   | 7   | 11  | 9   | 12  | 13  | 6   | 2   |
| Average of Syllables, . | 5.3 | 5.3 | 5.7 | 5.2 | 5.7 | 6.1 | 7.2 | 7.0 |

Here there is a distinct rise from 11 to 13, and from 17 to 19, and a marked progress in the whole series from 5.3 at 11 to 7.0 at 20. The same gradual increase of span is also shown in the following results for boys and girls of various ages in reproducing numerals and letters :—

|                    | Boys. |     |     |     | Girls. |     |     |                  |
|--------------------|-------|-----|-----|-----|--------|-----|-----|------------------|
| Age, . . . . .     | 11    | 12  | 13  | 13  | 17     | 18  | 19  | 20               |
| "Subjects," . . .  | 70    | 57  | 47  | 60  | 32     | 28  | 4   | 3                |
| Av. of Numerals, . | 6.5   | 6.8 | 8.8 | 8.3 | 9.1    | 9.9 | 9.4 | 9.0              |
| Av. of Letters, .  | 5.5   | 5.7 | 6.9 | 7.3 | 8.7    | 8.8 | 8.1 | 8.0 <sup>1</sup> |

<sup>1</sup> These are summaries of results by different observers and under varying conditions. Later on a more extended and trustworthy set of observations were made on the girls of the North London Collegiate School, with the following results :—

|                    |     |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Age, . . . . .     | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  |
| "Subjects," . . .  | 8   | 13  | 19  | 36  | 41  | 42  | 42  | 72  | 66  | 50  | 30  | 14  |
| Av. of Numerals, . | 6.6 | 6.7 | 6.8 | 7.2 | 7.4 | 7.3 | 7.3 | 7.7 | 8   | 8   | 8.6 | 8.6 |
| Av. of Letters, .  | 6   | 7   | 6.6 | 4.6 | 6.5 | 6.7 | 6.7 | 7.4 | 7.9 | 7.3 | 8.2 | 7.9 |

The answers were here written down, not taken orally as in the cases tabulated above. The uniform reduction of span at the corresponding ages

Steady advance is shown on the average throughout this Table except in the highest ages of the girls, where, however, the numbers are too small to allow us to draw any definite conclusions. The progress must, however, stop at some time, and the familiar fact of minds getting 'stale' after a certain age suggests the possibility that the increase in the span ceases with the increase in the bodily growth. The most noteworthy result of the table is the sudden leap of two syllables in the cyphering powers of the boys between the ages of 12 and 13. This may be due to greater practice in arithmetic. At any rate it raises them above the average for the girls of the same age, though they hold the reverse position as regards letters. No conclusions can be drawn as to the relative spans of the two sexes at the age of 13, as the subjects were drawn from two entirely different grades of society, and in the case of the boys (who were of the Jews Free School, Bell Lane,)<sup>1</sup> racial influences may have been at work in producing earlier maturity.

If, then, the span increases normally with age up to a certain point, it follows that in any class of the population, and in the population generally, below that age there will be a fixed number of syllables, letters and numbers which can on the average be seized after once hearing by persons of each age. This number can be determined by the means referred to above, and might easily form an addition to the usual items of anthropometric inquiries. If this were done we should obtain a *standard* span for the various ages and conditions just as we do for height, weight, &c., a standard relative and not absolute, but still enabling us to ascertain whether a boy or girl were above or below the average, and even the rate of growth in this particular. Another fact came out with equal clearness as our materials accumulated. This was that, as a rule, high span went with high place in form. Thus, selecting 30 boys of 12 years old out of a class and taking the average of their span as regards numerals, this was found to be 9.1 for the first ten, 8.3 for the next ten, and 7.9 in the remainder. In another class, also of 30 boys of the same age, the averages of the three sets of ten were in order 7.6, 7.1 and 6.3 respectively. Eight girls of the same age, taken in their order in class, gave for the first four an average of 8.2 for numerals against 8.0 for the last four, while the span for letters remained constant. With 12 girls of 13 years of age the first six had an average span of 8.3 against 7.8 for the last six in the case of numerals, while for letters the two sets were again equal. But the generality of the relation comes out clearly in the following

(of the girls) may perhaps be taken as a mark—or even as a measure—of the cerebral process involved in translating sounds into their visual symbols.

<sup>1</sup> The experiments were made by Mr. Louis Cohen, one of the masters of the school.



Table, giving the averages for the first and second halves of the various classes at the North London Collegiate School for Girls :—

| Form.          | Numerals. |           | Letters.  |           |
|----------------|-----------|-----------|-----------|-----------|
|                | 1st half. | 2nd half. | 1st half. | 2nd half. |
| VI.....        | 10.5      | 9.1       | 9         | 8.1       |
| Up. V.....     | 9.8       | 9.1       | 8.8       | 8.2       |
| V.....         | 7.9       | 8.6       | 8.1       | 7.8       |
| L.V.R.....     | 8.2       | 8.1       | 8         | 8.1       |
| Low V.....     | 8.5       | 9         | 8.2       | 8         |
| Up. IV. R..... | 8.4       | 8         | 8.4       | 7.5       |
| Up. IV.....    | 8.4       | 7.8       | 7.4       | 6.5       |
| IV. R.....     | 8.6       | 7.6       | 7.2       | 6.9       |
| IV.....        | 8         | 6.6       | 7         | 6.5       |
| L. IV. R.....  | 8         | 6.7       | 7.1       | 7.5       |
| L. IV.....     | 7.5       | 7.5       | 7         | 6.3       |
| Up. III.....   | 7.4       | 6.4       | 6.4       | 5.4       |
| III.....       | 7.8       | 8.5       | 6.7       | 6.4       |
| II.....        | 6.8       | 4.9       | 6.5       | 6         |
| I.....         | 7.4       | 7.1       | 6.8       | 7         |

Here the general superiority of the averages for the first half of the class comes out distinctly, though with exceptions which in many cases allow of special explanation. The only difficulty is the very small extent of variability: in order to get a wider range, and also to test the obvious deduction to be made from these figures, it was suggested by Mr. Francis Galton that experiments should be tried on idiots, and he kindly undertook the inquiry in conjunction with Prof. Bain and Mr. Sully. The detailed results are given below. At Earlswood the average span was as low as 4, and much the same at Darenth. 'Idiots' differ so much as to make it, indeed, hardly possible to speak of average results; but it appears that few, if any, attain to the normal span, and that a good number of those who can 'speak' at all are unable to reproduce more than 2 numerals.

This notable concomitance of high span and high place in form, though at first sight surprising, is perhaps nothing more than a corollary of the one previously shown. If the span rises with age, and is thus seemingly a measure of a pupil's relation to the standard of his or her age, it should not be surprising that a pupil with a span higher than the normal should take rank above those of the same age. At any rate, whatever be the cause, the above facts are too consistent and widespread to leave much doubt as to there being a definite connexion between high span and high place in form. And, so far as high place in form can be said to measure ability, the span may serve as some indication of ability.

This at once raises the question as to what is the exact power of the mind which is involved in reproducing these sounds. In our experiments we have simply tested the power of temporarily retaining sounds long enough to reproduce them correctly. We

propose to call this power *Prehension* from the analogy of Apprehension and Comprehension, to both of which it is clearly related as a simpler process. It may be described as the mind's power of *taking on* certain material; in this case auditory sensations. Now, of course, this power of taking on need not necessarily go with that of *taking in*, but, on the other hand, we clearly cannot take in without first taking on, and the mental operation we have been testing thus seems a necessary preliminary to all obtaining of mental material, *i.e.*, through auditory presentations. Under these circumstances we might expect that "span of prehension" should be an important factor in determining mental grasp, and its determination one of the tests of mental capacity. The results given above, as far as they go, seem to confirm in no slight degree the theoretical probability.

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*Supplementary Notes on "Prehension" in Idiots.*

By FRANCIS GALTON, F.R.S.

Prof. Bain and myself paid a visit of  $4\frac{1}{4}$  hours' duration to the Earlswood Asylum for Idiots, on June 18, 1886, where we were received by Dr. Cobbold, who gave us every assistance. There were 566 idiots in the asylum, and he picked out those who were the most suitable for our inquiries.

He told us, and we had abundant evidence of the truth of the statement, that, as a general rule, idiots are incapable of the simplest arithmetic. Usually they cannot even add two figures together, though they may know the multiplication table by rote. On the other hand, a very few cases are to be met with in which idiots have a tenacious memory for dates. We determined to apply the test of the number of figures that can be orally repeated after having heard them read out once distinctly, to (1) the better class of idiots generally; (2) those who had the special power of recollecting dates, and to test the latter in other ways as well.

I. Nine of the best girls were selected by Dr. Cobbold out of the class-room. They could all read and write a little, and were intelligent enough to do some house work. They were aged apparently from 16 or 17 to 25. They all failed in adding two figures together, such as 3 to 5, 4 to 7, &c. Their performances in the numeral-test are given below at A.

Six other girls were then taken by Dr. Cobbold from the same class not quite indiscriminately, as our wish at that moment was to find girls who were intelligent enough to answer quickly, and who were nevertheless unable to repeat many figures. The result was, however, that given at B.

|   | Number of cases. | Greatest number of Figures that could be recollected. |              | Number of Figures at which the memory first wholly broke down. |
|---|------------------|---|--------------|--|
|   |                  | Perfectly.  | Imperfectly. |  |
| A | 1                | 2   |              | 3  |
|   | 1                | 3   |              | 4  |
|   | 1                | 4   |              | 5  |
|   | 2                | 4   | 5            | 6  |
|   | 4                | 5   |              | 6  |
| B | 1                | 2   |              | 3  |
|   | 2                | 3   |              | 4  |
|   | 1                | 4   |              | 5  |
|   | 1                | 5   |              | 6  |
|   | 1                | 6   |              | 7  |

Having thus obtained two girls, one from each batch, who could not repeat more than two figures without mistake, 23 trials were made with them with three figures in each, and their errors were classified. In 17 cases the last figure was rightly repeated; in 10, the second; and in 7, the first. The last uttered figure is therefore most easily repeated.

There was no obvious tendency to transposition. One of the girls had a peculiar trick of duplicating a numeral and giving an answer of 4 instead of 3 figures, thus 1216 for 216, 0808 for 408.

II. Three men idiots were brought to us who were remarkable for their memory of dates; their initials were J. M., W. C. and G. M.

The speciality of J. M. was his acquaintance with Magnall's *History*. I had seen him some years ago when I visited the Asylum in company with Mr. Romanes, previous to Dr. Cobbold's appointment. He had then a well-thumbed volume, printed to the best of my recollection in small type; he now has a new volume of 419 pages, small 8vo, and in large type, but does not profess to know the whole of it by heart. He was tested at the lives of Copernicus, Columbus and elsewhere, and repeated with considerable exactitude. Where he substituted words they made good sense, and where he omitted words or passages the omissions did not spoil the sense. He repeated much that we did not find in the book, but which I ascribed to his recollection of the more diffuse edition of the work. He was asked about astronomical measures and gave abundance of correct numerical data, and when questioned as to their signification answered sensibly enough. His memory cannot be visual, as he does not know in what part of the page the recollected passages lie. Of the sermons he had heard, he could remember the texts of many and the dates when they were preached, but not the sermons themselves. His power of learning new sentences seemed small; he

was tried with one of three lines out of a local guide-book that lay on the table, which was written in much the same magniloquent language as Magnall's *History*, but after five readings he failed to recall more than a few words.

On trying the numeral-test, he was right four times out of six with three figures, but wholly broke down at four.

W. C. has a minute recollection of dates of deaths, visits, holidays and other events in the asylum. He was tried in many cases familiar to Dr. Cobbold and in others verified by his journal, and his answers were pronounced to be exact. He also had a considerable knowledge of the day of the week on which any day of a month would fall in the present or in recent years, and was particular about leap years. I tried him from my pocket almanac. He correctly gave Monday as the day on which May 10 fell this year. The 13th of April puzzled him a little; he recollected that the 12th was a Wednesday, but calculated at first wrongly from that premiss; however he at last got the answer out correctly. When I pronounced the names of a month, day and year to him, as "October the twelfth, 1883," he could not recollect it, apparently from want of interest in abstract figures.

The numeral-test was a complete failure with him. We could not get him to repeat even three figures by rote. He seemed unable to understand what was wanted, and gave some fancy results.

G. M. had a memory for dates resembling that of W. C., but less good. They often conferred together about them. He was quite unable to add, saying that 2 and 3 made 4, 3 and 2 made 6, &c.

The numeral-test was a complete failure; he did not seem to understand what was wanted.

The impression left by these three men, based on what they said, and otherwise confirmed, was that their memory was chiefly due to their habit of mentally reiterating certain events and phrases that happened to interest them, so that their memory was peculiar in its limitations rather than strong. It would follow that if they happened to take a fancy to the numeral-tests, future results might not be so complete a failure as these were.

Prof. Bain has read the rough draft of this, and approves.

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On June 30, 1886, Mr. Sully and I spent four hours at the Asylum for Idiots at Darenth, near Dartford. Dr. Fletcher Beach had kindly made preliminary experiments there for us, and when we arrived he gave us every assistance.

Most of the Darenth inmates are merely imbecile. Those reckoned as "first-class" struck me as far superior in intellect to any I had seen at Earlswood, and those of the second-class as distinctly superior to the first-class at Earlswood. They were

taught some simple arithmetic. In the lower classes it seemed that the children were better able to seize what was wanted when tested with the names of letters than with those of numerals, so in the later experiments letters were employed; otherwise the mode of testing was exactly the same as that used at Earlswood. The names of the numerals (or letters) were distinctly uttered at estimated intervals of half a second, and after I had quite done the child began to repeat them.

Below, the figures *on* lines are intermediate estimates; thus in the case of one idiot who was not successful with 3 figures, we had reason to think the mistake possibly due to other causes than incapacity, so the entry was made on the line dividing 2 from 3.

|   | Span of Prehension. |   |   |   |   |   |   |   |    |  |
|---|---------------------|---|---|---|---|---|---|---|----|--|
|   | 2                   | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |
| Class I. The four sharpest children ; ages 9, 12, 13 and 15. The quickest of these, who repeated 9 figures, was only "morally imbecile".                          |                     |   |   | 1 |   | 2 |   | 1 |    |  |
| Class II. Ages, 9-16. . . . .   |                     | 1 | 1 | 1 | 2 | 1 |   |   |    |  |
| Class III. Three of those whose span was only 2 had been removed from school for nearly 12 months. Their ages are 18, 18, and 19. The others range from 11 to 15. | 4                   | 2 | 5 | 2 |   |   |   |   |    |  |
| Class IV. Ages 11-15. . . . .   |                     | 2 | 1 |   |   |   |   |   |    |  |

It was very noticeable that the last uttered word was the best repeated, and after this the first. Also that there was much tendency to the transposition of adjacent words. The children were usually slow of utterance and apparently of thought. They tired very quickly; sometimes after only three or four attempts. In other cases there was an improvement within brief limits, due apparently to their better understanding what was required. They did not show signs of inattention (by looking away, &c.), but upon this Dr. Fletcher Beach remarks that the faculty of attention is one of the first to be trained. If the children should be made familiar with these experiments, and be tested when quite fresh, at and a little beyond the limits of their previously ascertained span, it is probable that better results could be obtained. They seemed to take pleasure in the tests and to show emulation.

I submitted a rough draft of the foregoing to Mr. Sully, and afterwards to Dr. Fletcher Beach, whose remarks are now incorporated in it.

## V.—DISCUSSION.

### "ILLUSORY PSYCHOLOGY."

By Professor JOHN DEWEY.

The fact that so acute and experienced a philosophical thinker as Mr. Shadworth Hodgson has misapprehended the bearing of the articles by me in *MIND* Nos. 41, 42, must be my excuse for again troubling the readers with reference to the matters discussed there. Mr. Hodgson seems to think that it was the object of one to explain the nature of the individual and the universal consciousness, and of the other to give some definite directions regarding the application of method to philosophy and psychology. Thus apprehending them, he quite naturally complains of the "blanks" in the argument; and, if I may judge from the tone of his remarks, thinks, indeed, that there is not so much an argument as an assumption, while my lack of logic is to him lamentable. May I be allowed to state that I had no such ends in view, and that what seems to Mr. Hodgson a lack of logic on my part seems to me a misunderstanding of logical *bearing* on his part? The logical purpose of the first article was as follows: Granted the general truth of that way of looking at philosophical questions which is specifically English (and which, following the usual custom, I called psychological), (1) to determine whether some important factor has not been overlooked; (2) to show that it is involved in this standpoint that all questions must be decided from their place in conscious experience; (3) to show that this general statement applies to particular questions, like the nature of subject and object, universal and individual; and (4) to show that this in turn implies that the psychological standpoint is one which transcends and underlies the distinction of subject and object, &c. Now it was open to Mr. Hodgson, or anyone else, to reply that I misinterpreted the standpoint of British philosophy; or that, while its standpoint was correctly stated, it involved no such implications as I thought it did; or that while it did involve such implications, this fact is, at bottom, only a *reductio ad absurdum* of the standpoint. But objections like those of Mr. Hodgson, with all due deference, seem to me a huge *ignoratio elenchi*.

And his misunderstanding of the logical bearing of the whole has influenced his treatment of details. Mr. Hodgson's aversion to some expressions is so acute that he seems hardly to have asked himself in what connexion these phrases are used. If he will re-read certain pages of the article referred to, I think he will see that the terms 'postulate' and 'presupposition,' whose use seems to him to involve a contradiction on my part, are used

not generally, nor with reference to my own standpoint, but in connexion with this examination of British philosophy, and that the contention of the article is, rather, that what has been an unconscious presupposition ought to be given a psychological examination and position.

So the logical bearing of the second article was not to give recommendations regarding specific methods, but to suggest to those whom Mr. Hodgson calls my "Germanising friends" that their results will never have a firm basis until they are reached by a psychological method. The article was entitled "Psychology as Philosophic Method," just as Mr. Hodgson might call a portion of his article "Metaphysic as Philosophic Method".

It thus appears to me that the mass of Mr. Hodgson's direct specific criticism is so beside the mark that it is needless to undertake a detailed review of it. But one may always learn much from Mr. Hodgson when he is positively propounding his own views; and certain discussions, as, *e.g.*, regarding the nature of the universal and the individual, and the mutual connexions of science, philosophy and psychology, are never beside the mark. I should like briefly to discuss the attempts which Mr. Hodgson kindly makes to fill the "blanks" in my argument.

# I.

First, then, as to the relation of the individual and the universal consciousness, or, more properly speaking, of the individual and the universal in consciousness. The position of Mr. Hodgson, as I understand it, is that I have not duly distinguished between perceptual processes, which give us the individual, and conceptual processes, which generalise it and give us a result more or less abstract, and that consequently I have erected a generalised notion of my individual consciousness,—a logical abstraction into an actual *ens*, which I call universal consciousness (pp. 480 and 484). The real state of the case, we are to believe, is as follows: There is a "stream of states and changes" which comes to every individual; this is an individualised stream, and occurs in perceptual order. Out of it the world of ordinary experience is built. But the individual can think as well as perceive, and he comes gradually to generalise. This process of generalisation he extends even to his own consciousness; he generalises conscious experience itself. But the generalisation does not give, either in knowledge or belief, a universal consciousness different in any way from his own. It is merely the logical or conceptual way of representing individuality of what in actual experience is perceptual (pp. 480 and 483). A universal self can only be represented in thought as an individual self indefinitely or infinitely magnified (p. 486). The result is that, while we may speak of universal knowledge, the content of consciousness, it is fallacious and self-contradictory to speak of a universal knower, the agent or bearer of consciousness (pp. 484 and 485). The gist of the whole



controversy is, that while we may and must assume individuality as given to us (pp. 480, 483), universality is the result of a logical process. As to this I have to say:—

1. Mr Hodgson is misled by an ambiguity in the use of the term 'individual'. In one sense (in which it cannot be the subject-matter of any science) it is given to us; in another (in the sense in which it is an object of scientific knowledge) it is not given to us, but is a product of psychological experience. Every experience is given to us as a unique experience, a fact of absolute and immediate interest. Individuality in this sense is indeed an assumption which we need not care to avoid. But this assumption is only the assumption that a fact exists; it tells us nothing of the *meaning* of the fact. And it is the assumption that we know at the outset, what individuality *means*, and that the immediate fact of experience is the same as an interpretation of the fact, which plays such havoc with Mr. Hodgson's ideas. It is this assumption which enables him to slide unconsciously from the immediate unique interest which accompanies every experience, and which makes it mine or thine, to the fact of individuality, as one being among others, limited in space and time, and whose ideas occur as a "stream". Individuality in this sense is not "given," is not "immediate," and is an assumption which we must avoid making until we see what it *means*—until, in short, it is not an assumption. Individuality in this sense may be provisionally opposed to universality, but this sense is not an original or immediate *dictum*. It is a product which has come about through experience, through psychological experience. The process of its coming about, the way in which this gets to be a fact of our conscious experience, is something to be examined by psychology. The psychological standpoint is prior, so to speak, to this result. It is confusion enough to substitute this psychological product for the immediate individuality which is a matter of feeling, but to substitute a philosophical interpretation of the fact is to carry the confusion a step further. And this Mr. Hodgson does in giving individuality a meaning—that is, an interpretation—which opposes it absolutely to universality. One thing which Mr. Hodgson would have learned by going to psychology rather than to metaphysics would be to avoid this threefold confusion of the individuality of immediate feeling, of constructed fact of experience and of philosophical interpretation of the fact.

2. The substitution appears, however, in a still worse plight when we consider that this view of individuality which opposes it absolutely to universality is an *incorrect* interpretation. I speak, not as a Germanising transcendentalist, but according to my humble lights as a psychologist, when I say that I know nothing of a perceptual order apart from a conceptual, and nothing of an agent or bearer apart from the content which it bears. As a psychologist, I see the possibility of abstractly analysing each from the other, and, if I were as fond of erecting the results of an

analysis into real entities as Mr. Hodgson believes me to be, I should suppose that they were actually distinct as concrete existences. But, sticking fast to what Psychology teaches me, I must hold that they are aspects, analytically arrived at, of the one existing reality—conscious experience. Mr. Hodgson finds no difficulty in making the separation. He assumes—and speaking from the metaphysical standpoint would naturally assume—that there is “a stream of changes and states” which “come to an individual,” and “out of this as data is built up ordinary experience”. So he regards this “stream” as in some way individual, while the world built up out of it—the content—may be distinguished from it. To me it seems that this “stream” is built up along with, and mostly out of, the experiences of the everyday world. Stream and world are equally psychological constructions, built up by psychological processes. It must be from Metaphysic (it cannot be from Psychology) that Mr. Hodgson gets a “stream” which is given ready made. Psychology would tell us that the “stream” is essentially due to projections out from the present by a psychological mechanism in the form of memory and expectation. Consciousness is not a moving body, which, flying through time, leaves a trail behind it, as does a rocket in space. When the idea of an absent person is suggested to an infant, the child does not conceive this as an idea, but looks about him to localise the person. His life is a present one, and it is only through a psychological development that he comes to have experiences placed as past and anticipated as future. The experiences of time and of “streams” are due to psychological dynamics. The process by which the individual comes to connect certain experiences with himself as a being continuous in time, and to separate them from others which he refers to existences in space, is one of the problems of psychology. What is the bearing of all this? Simply, that we have no ready-made distinction between the individual agent and the world of experience over against him, but that each is built up out of a common material by contemporaneous processes. A correct psychology would teach Mr. Hodgson, it seems to me, not only that the *ordo ad individuum* and the *ordo ad universum* are built out of a common stock, but that the process is a reciprocal one, so that our ideas of ourselves as individuals, nay ourselves as individuals, are made up out of our experiences of the world, and *vice versa*. The agent is not the agent which it is without the content, not only in the sense that it bears that content and no other, but in the sense that this content reacts upon it and is organised into it to make it what it specifically is. If Mr. Hodgson will make an absolute separation between the individual as agent and the content of consciousness as general, he will find that all that is left to the agent is:  $x$  is experienced and is interesting, where it is impossible to give  $x$  any definite values. Its analogies we may hypothetically find in the consciousness of an oyster.

3. And finally upon this point, I know of no perception which is not made what it is by conceptual elements within it. Mr. Hodgson well says that "every act of attention to a percept is the commencement of a generalisation" (p. 481). But it cannot be possible that Mr. Hodgson supposes that perceptions are given to us prior to attention, and that this is an activity which supervenes, the perception once formed. Correct psychology seems to teach that the attention—the active connexion between the mind and a given psychical complex—is necessary to interpret, to make it a percept. And unless there are two utterly different kinds of attention, generalisation must be thus introduced, and a universal element be present in the percept. I cannot believe accordingly that Mr. Hodgson's attempt to set up individuality of consciousness as opposed to universality is successful, whether it proceeds by distinguishing the perceptual order from the conceptual, or by distinguishing the stream of consciousness as given from the content of that consciousness as interpreted. At all events, I hope it is clear that this conception of universality of consciousness is not that of an individual indefinitely magnified. I should still be compelled to ask, What is this individual which is magnified? and if I deal with facts and not with analytic abstractions, I find it to be bound up through and through with universal factors, nay constituted by its relation to the universal factor. One word more, and I have done with this point. The universality of consciousness stands just where its individuality does. An individuality is "given" in the sense that every consciousness has a unique interest; so universality is "given" in the sense that *every* consciousness has a *meaning*. But the experience of the world as a fact, like the experience of the individual stream as a fact, is a constructed product. And the philosophical interpretation of the fact that there is a world of experience is still more remote from being immediate or given. In each of these three stages it stands just where individuality does.

## II.

I can treat but briefly of the other point: the relation between Psychology and what Mr. Hodgson calls Metaphysic and what I called Logic. Mr. Hodgson seems to think that upon my theory no place can be left for physiological psychology, for race-psychology, &c., &c. They would, however, be left just where they are now—as special *methods* for determining the conditions and genesis of various factors in conscious experience.

When Mr. Hodgson says that Metaphysic abstracts from the fact that consciousness is individually conditioned (pp. 490 and 493) he simply suggests the point which was uppermost in my mind when I wrote the article on "Psychology as Philosophic Method". Metaphysic or Logic does abstract from the individual, which conditions the content. As thus abstract, it cannot furnish the final method of philosophy, for as abstract it makes an

assumption and is incomplete. It is incomplete; for is this unique and yet absolutely universal fact that the content of consciousness is known only in and to an individual—is this fact to be left out of account? The play of "Hamlet" with Hamlet left out seems to me nothing in comparison. It makes an assumption, for to make assumptions is simply to see how facts look when some integral factor is omitted.

English thought, according to Mr. Hodgson, has commonly ignored the universal or all-embracing character of the consciousness, and has identified it with individual being. So it seems to me, and the article in *MIND* No. 41 was written to show that psychology could not be even psychology, much less philosophy, until the universal factor in consciousness was attended to. Transcendentalism, he says, inclines to identify consciousness with universal being, and if this be interpreted to mean that it inclines to neglect the individual agent, without which the universality of the content is naught, I heartily agree with him. The article in *MIND* No. 42 was written to show that transcendentalism was incomplete till it recognised that the universal content can be realised only in an individual bearer. And I make bold to add that Mr. Hodgson thinks the two sides may be split, one surrendered to Psychology, the other reserved for Metaphysic; while to me it seems that we shall never get the surest footing and the completest results until we recognise that such halves—the individual without the universal content, and the universal content without the individual bearer—are *dissecta membra*. The science which unites them, and considers the content as realised in and by an individual, and the individual as realised through and by the content, seems to me to be Psychology. A psychology which should attempt to occupy the position Mr. Hodgson gives to it would have nothing to say except—Here is a consciousness which interests me, but about which I can say nothing.

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### THE GENERALISATIONS OF SCIENCE.

By Professor C. LLOYD MORGAN.

An important question is suggested by Mr. N. Pearson's interesting discussion of 'The Definition of Natural Law' in *MIND* No. 44. That question concerns the relation that Natural Law bears to the generalisations of science. Are the two fields coextensive? or is Natural Law a vast region of which the generalisations of science constitute only the known and accurately surveyed areas? Mr. Pearson holds the latter view. He objects to Lewes's description of a law as a notation of *observed* facts, and to the current definitions of natural laws as generalisations from experience, on the

score of their containing what he terms an "ascertainment-clause".

"It is perfectly accurate," he says, "to describe all known natural laws as observed uniformities of process: but surely the essence of the law is its *uniformity*, and not the accidental fact that it has been *observed*. Science is perpetually adding to the number of discovered laws; but these laws existed from the time when the operations of nature began, and the mere fact of their discovery does not add a tittle to their validity. In short, ascertainment is necessary to our *knowledge* of natural laws, but it is not the least necessary to their *existence*" (p. 564).

And, after elaborating his view, he says in conclusion:—

"If this be so, the case against the ascertainment-clause is made out. If we believe Natural Law to prevail *universally*, it is incorrect to define it as an order which is *limited*—limited, that is, by the condition of previous observation. If, on the other hand, we desire to restrict its meaning to *observed* uniformities of process, it is inaccurate to call it *Natural Law*; seeing that, *ex hypothesi*, it does not extend to the *whole* of nature, but only to that small part of it which has fallen under human observation" (p. 569).

Now there is much in Mr. Pearson's paper with which I am glad to find myself in agreement; but there is perhaps more in which I cannot concur. I am in agreement with him in believing that there is in a so-called Law of Nature something beyond a mere generalisation from experience. But I differ from him as to what that something is; and I wholly part company with him when he draws a distinction between our knowledge of Natural Laws and their existence.

Every Natural Law comprises, besides the generalisation from experience on which it is based, the hypothesis or assumption that it holds good not only in those cases which have been actually observed, but in all cases of like nature under like conditions. Laws of Nature are, as I have elsewhere expressed it, "well-proven and oft-verified inferences from known facts, and also, as we believe, generalised statements of *all* the facts of like nature, whether we have observed them and verified the law in their case or not" (*Springs of Conduct*, p. 70). I therefore fully agree with Mr. Pearson that to restrict the meaning of Natural Law to observed uniformities of process, and to limit it by the condition of previous observation, would be in the highest degree unsatisfactory and unwise. It would totally change the meaning which we attach to the oft-misunderstood term Natural Law. But I do not think that this would justify us in abandoning the "ascertainment-clause": nay, it would rather justify us in adding thereto an 'inference-clause,' at present implied but not expressed.

Mr. Pearson would, however, draw a far more fundamental distinction between Natural Law and notation of observed facts than that which I have briefly sketched. He holds that Natural Laws are not merely human products, the result of scientific generalisation and inference, but that they have an independent existence, separate from and holding jurisdiction over the facts, and only

await human discovery. This view is perhaps the prevalent view. And yet I venture to think that it is an erroneous view—a remnant of what a Comtist would term the metaphysical stage of knowledge—and one that is strangely out of place in these more positive times.

First, I would ask in what sense it can be true that these laws have existed from the time when the operations of nature began? Take for example the law of gravitation. Can we say that this law has been in existence since the operations of nature began? I think not. The law is a generalisation, and generalisation implies a generaliser. So far from having been in existence since the operations of nature began, it had, I contend, no existence before it was formulated by man. The phenomena from which such a law might be deduced have been in existence for ages uncounted; but until man, the educator, appeared, the deduced law could have no existence. The laws of nature, or, as I should prefer to call them, the laws of science, are human products, the result of observation and of inference based thereon.

In opposition to this view it may perhaps be urged that (to take a wider generalisation than even the law of gravitation) the operations of nature were uniform before man discovered their uniformity. Undoubtedly this is so. But the uniformity of phenomena and the law which summarises the fact are not one and the same thing. On this head, indeed, it would seem that both schools are agreed. But whereas the one school maintains that the natural law was there from the beginning, exercising what Mr. Pearson terms "absolute jurisdiction" over the facts, the other school believes with Lewes, that "what we call laws of nature are not objective existences, but subjective abstractions—formulae in which the multitudinous phenomena are stripped of their variety and reduced to unity".

Again it may be urged that the law was implicit in the phenomena before man came to formulate it as such. Well, I am not quite sure that I know what implicit in the phenomena means. Does it mean that the law was actually existent as such? or does it mean that the facts were such that this generalisation could be extracted from them? In the former case I beg to be informed *how* actually existent. Mr. Pearson is careful to remind us that "Natural Law in the scientific sense involves no notion of an over-ruling ordinance". I would fain know the mode of existence of an unknown natural law and the manner in which it exercises its "absolute jurisdiction". But if the law was only implicit in the phenomena in the sense that when man appeared on the earth this generalisation could be extracted from them, then, as it seems to me, the law is only implicit in phenomena in the same sense and to the same degree that a half sovereign is implicit in the gold-bearing quartz-reef. The raw material was undoubtedly there. But on the strength of this to proclaim that the half sovereign was in existence countless ages

before the advent of man is, to say the least of it, somewhat confusing to plain scientific folk.

In further illustration of the positive or scientific position we may take that law of biogenesis which Mr. Pearson also adduces in illustration of his position. This doctrine, as he says, is probably accepted by ninety per cent. at least of scientific authorities; and it admirably exemplifies the nature of a law of science. It is essentially a generalisation from experience. Beyond experience and legitimate inference founded thereupon it does not pretend to go. No scientific man who thoroughly knew what he was talking about would, on the strength of this generalisation, dare to dogmatise from negative premisses and proclaim that nowhen and nowhere in the present or the past have living forms sprung into existence from not living antecedents. This would be a wholly illegitimate inference. Such a dogmatic assertion would probably come from one of strong theological bias, who had raised a plain scientific generalisation into a metaphysical law of nature, exercising in some mysterious way a mystic sway over facts. It is not by restricting Natural Law to an observed uniformity that we are most liable to fall into error; but rather by illegitimately converting observed uniformity, true within the limits of observation, true for finite time and space, and believed to be universally true under like conditions of experiment and observation, into a metaphysical Natural Law, supposed to be true absolutely and without possible limitation.

Now according to Mr. Pearson the law of biogenesis was in existence at a time when most of the best authorities believed firmly in spontaneous generation, the existence of the law and our knowledge of it being, in his philosophy, totally different things. But when, I would ask, did the law begin to exist? Did it exist before there were any phenomena over which it could exercise jurisdiction? Or did it spring into existence with the advent of life.

Let us, however, turn to other laws to press home these questions. I presume that the inductions of Sociology may take rank as natural laws. I presume that, though we may not yet adequately know them, there are natural laws exercising jurisdiction over the phenomena special to social aggregates. But since when existent? Have the laws been in some way evolved, *pari passu*, with the phenomena? Were they pre-existent? Or did they come into existence at some point of time during the continuous evolution of the phenomena? These are matters on which I would gladly be informed.

From the standpoint of positive science, however, this antithesis between our knowledge of natural laws and their existence involves a serious misconception of the nature of scientific laws. Such laws are essentially bits of knowledge, and except as known have no existence. In Berkeleian phrase their *esse* is *cognosci*. An unknown scientific law is a contradiction in terms: it is a generalisation that has never been reached.



It may however be said by one who holds to this distinction between known and existent that such a geometrical law as that the three angles of a plane triangle are equal to two right angles, is a truth that exists whether we know it or not. It is, we are told, a fact for all time eternal and immutable, and would be just as true had no mathematician ever discovered it. I venture to doubt the truth of this venerable assertion. Of all branches of science none better than geometry illustrates what Lewes meant when he spoke of the ideal construction of science. The whole fabric is a human product. Its generalisations are absolutely true. Yes! So long as you grant the absolute truth of its axioms and postulates. The science from beginning to end is redolent of human genius; and without that genius had never existed. Given three stars and a human mind and the laws of the triangle emerge. But take away the percipient mind; and what remains but your three stars? Certain relations are implicit in the triangle which may be formed, if, between each pair of the stars, there be drawn the shortest possible line. True; but you need the geometer to perceive them. The half sovereign is implicit in the quartz-reef. True; but it has no existence *as such* till it be minted.

My position, which I believe to be the positive position, is now, I trust, sufficiently clear. I have no right to occupy space in its further elaboration. But I believe it to be essential that scientific laws should be purged of the metaphysical glamour of necessity, absoluteness, eternity, immutability and the like, which is too apt to surround them. And with this end in view I am not prepared to counsel the abandonment of the "ascertainment-clause" so long as this helps us to grasp the fact, that the laws of science which we call Natural Laws are neither more nor less than well-founded generalisations rooted in the solid ground of experience and spreading forth in the atmosphere of inference that rests thereon.

## VI.—CRITICAL NOTICES.

*Works of* THOMAS HILL GREEN, late Fellow of Balliol College, and Whyte's Professor of Moral Philosophy in the University of Oxford. Edited by R. L. NETTLESHIP, Fellow of Balliol College, Oxford. Vol. II. *Philosophical Works*. London: Longmans, Green & Co., 1886. Pp. xliv. 552.

This second volume of Green's works is of much greater interest than the one which preceded it, from the fact that it consists entirely of matter not hitherto published. It is made up of selections from Green's drafts of his tutorial and professorial lectures in Oxford subsequent to 1874 (the date of the Introductions to Hume). The contents of the volume fall into three main divisions, the first consisting of "Lectures on the Philosophy of Kant" (both the *Critique of Pure Reason* and the Moral Theory), the second of "Lectures on Logic," or rather perhaps on the philosophy of logic, and the third, which is also the longest, of "Lectures on the Principles of Political Obligation". The second part is mainly taken up with criticism of Mill and dovetails at many points into the lectures on Kant. Sections D, F, G, H, for example, on verbal and real propositions, space and geometrical truth, time, demonstration and necessary truth, ought to be read in connexion with the Kantian discussions on analytical and synthetical judgments, the forms of perception, the distinction between 'outer' and 'inner' sense, and the 'empirical reality' of time. The third division treats, as its title indicates, of "the moral grounds on which the State is based, and upon which obedience to the law of the state is justified". Partly historico-critical, these lectures are in the main constructive, and contain, in effect, a theory of the State. The concrete and practical interest of the subject was specially calculated to stimulate Green's powers, and this third division of the volume will probably be found the freshest and most valuable, not to say the most interesting, part of the book. But we are no further concerned with it in the present notice.

The papers here printed do not pretend to offer a continuous exposition of Kant's theoretical philosophy; they are valuable rather for the criticism which they contain of some of Kant's prominent but often misleading distinctions. That between outer and inner sense, for example, is carefully dealt with in several places. In another case—the division of truths into necessary and contingent—Green points out that, while it is of course true that sense as sense can yield no necessity, there exists, on a true view of nature as constituted by thought relations, no such absolute distinction as Kant makes out between the truths of geometry and other scientific truths. This is instructively worked out in Sections F

and H of the second part of the book: "The true distinction is between what is fully true and what is partially true. What is fully true once is fully true always, of a natural phenomenon no less than of a geometrical figure; but any proposition about a natural phenomenon is true of it only under conditions of which we do not know all, while a proposition about a geometrical figure, if true at all, is true of it under conditions which we completely know" (p. 250; cp. also pp. 264 ff.). It will be evident from such instances that the lectures are quite as much devoted to evolving a coherent philosophy out of Kant as to expounding the undiluted Kantian doctrine. As an interpreter of Kant, indeed, Green follows substantially the method already familiar to us in Professor Caird's *Philosophy of Kant*—what I should call the method of sympathetic development. But he is perhaps more careful in distinguishing between the positions thus developed and the less coherent utterances of the original Kant. The Hegelianising of Kant may be best illustrated from the section on the 'Deduction of the Categories,' as the most centrally important part of Kant's work. Here it is noteworthy that Green follows the first edition in preference to the second. The former undoubtedly contains statements which seem to make powerfully for the Hegelian view of the unity of apperception and its relation to reality. Kant there speaks, for example, of the transcendental object as a mere *x*, and defines it as "that which prevents our cognitions from being determined at random or as we choose, and determines them *a priori* in a certain fashion". It may well be argued that the predicates which he applies to the object here are no more than would be equally applicable to the transcendental Ego. Hence Green concludes: "With Kant, the transcendental object and transcendental subject are the same. The presence of an eternal and unchangeable self to all phenomena at once makes them an order of nature and makes our experience of them one connected system. 'Order of nature' and 'unity of experience' are only two aspects of one and the same function of the eternal Self, which we call object or subject, according as we look on one or the other of these aspects" (p. 28). The main objection to such a statement, in my view, is the "With Kant" with which it opens. It is true that Kant, in the last paragraph of the passage referred to, does speak in terms which bear a certain resemblance to this position of Green's. That is, having for the time being our rational experience alone in view (and seeing, in his own words, that, so long as we so restrict ourselves, "the *x* which corresponds to our ideas (*i.e.*, the object), inasmuch as it must be something distinct from them all, is nothing for us"), Kant in this one passage identifies the objective reference which, *within experience*, we give to our ideas with the constitutive action of the apperceptive unity. But this is still far from attributing to the transcendental Ego the metaphysical place here assigned to it by Green. In reality, Green immediately finds it necessary to correct the too

sweeping implication of his words, for he goes on to say in his next paragraph: "We have consciousness, then, of such object or subject. . . . Is it, then, the 'thing-in-itself'? Yes, according to Kant, it is that 'thing-in-itself' which renders possible 'nature in the formal sense'." It seems as if, when he wrote the first edition of the *Critique*, he was coming to regard this as the sole 'thing-in-itself,' but the final view, into which he had settled down when he wrote the *Prolegomena*, was that there was another 'thing-in-itself,' which renders nature possible in the material sense, the cause of our sensations." This is an admission eminently satisfactory to the historical student, because it disposes incidentally of the view by which the ascription of Hegelian positions to Kant is sometimes justified, *viz.*, that, beginning with certain untenable presuppositions, Kant gradually wrote himself clear and left them behind, though they remain stranded here and there upon his pages like glacial relics of a prehistoric time. But this is so far from being the case that Kant, as he proceeded, settled more and more into a view which dogmatically asserted the most obnoxious of these presuppositions. In fact, the view which 'sympathetic development' ascribes to Kant is one which *we* may base upon a few passages of his writings, but which I gravely doubt whether Kant ever so much as thought of, even in writing these very passages. This is evident enough (as virtually admitted by Green) in the case of the transcendental object, but (though it may appear more shocking to say so) there seems equally little reason to doubt that the doctrine of Kant's English followers on the subject of the transcendental Ego departs equally widely from anything that ever entered into the mind of Kant himself. Green, for example, expressly identifies the unchanging subject of thought—the "eternal self" which makes one "cosmos of experience"—with God, the absolute or divine self-consciousness. Now I am not here discussing whether such an identification is or is not necessary in the interests of consistent thinking, but surely, in view of other integral parts of his system, we cannot imagine such an idea to have been present to Kant himself. God was conceived by Kant in the deistic fashion of last century as a completely transcendent Being, whose main function, according to the Kantian ethics, is to superintend the ultimate adjustment of happiness to virtue. We search Kant in vain for any *rapprochement* of the human consciousness and the divine. He even makes light of the unity of apperception, calling it 'a merely logical unity,' and 'the poorest idea of all'. For, even in the case of the human subject, this unity does not represent for Kant the noumenal existence of the man. Just as he retained a thoroughly mechanical conception of God, so he seems to have believed, somewhat as Locke did, in a quasi-substantial existence of numerically separate persons, as things-in-themselves, whose function, as it were, the unity of apperception may be conceived in each case to be. It will be understood that I do not for a moment put forward this

view against the other in respect of its philosophical tenability; but when Agnostics and Idealists are alike found identifying their position with Kant's, I think it might be in the interest of clear thinking to disengage our arguments and results from anything more than a historical dependence on the inextricably tangled (though, of course, infinitely valuable) system of Kant.

These remarks do not at all affect the value of Green's work, which, by the freedom of its criticism, does to a large extent so disengage itself. Some of his criticisms will be very helpful to the student struggling among Kant's multitudinous distinctions and divisions. Take, for example, his remark that "the 'Transcendental Analytic' would have been much simpler if the account of the categories prior to the 'Deduction' had been omitted". "What is fancifully called the 'Deduction of the Categories'" deduces in reality only the unity of apperception, and the real deduction of the categories is given, so far as it is given at all, in the 'System of Principles'. The account of 'Schematism' would then disappear, the imaginary necessity for such a contrivance arising solely from the fact that the categories are supposed to be first of all independently, or, in Kant's language, 'metaphysically,' reached as pure logical conceptions, and only afterwards adjusted to the sensuous matter of experience. The Section on "The Empirical Reality of Time" (pp. 72-81) is particularly interesting from the independent development of the discussion. Green here touches a question which arises out of the Kantio-Hegelian as it did out of the Berkeleyan idealism. "Admitting an eternal thinking subject as the *correlatum* of nature, without which nature could not be, what is nature for such a subject?" "The answer is," Green proceeds, "it is just what it is for our reason, which *is* this eternal thinking subject." This is a position akin to that of Berkeley in *Siris*, when he says that "there is no sense nor sensory, nor anything like a sense or sensory, in God". But Green goes on to admit that "when we come to say what it [nature] is for our reason, we cannot get beyond the mere formal conditions of there being a nature at all," these formal conditions being embodied in the following "formal definition of nature":—"For reason . . . nature is a system of becoming which rests on unchangeable conditions". Does not this seem to eviscerate the universal consciousness of what might be termed broadly the content of reality? Moreover, in spite of the elimination of sensibility, it appears in the sequel of Green's discussion that actual 'changes' or 'events' have meaning only for a sensitive consciousness. "Sensibility is the condition of existence in time, of there being events related to each other as past, present and future" (p. 79). Consequently, as the condition of "changes prior to the existence of feeling on earth or anywhere else," Green seemingly postulates what he calls "an eternal sensibility"—"a sensibility which never was not". The precise meaning of these expressions, however, is not quite clear, and no further de-

velopment is given to this attempt to bring eternity and time together.

The lectures on Kant's Ethics (pp. 83-155), with which must be taken the later-placed discussion "On the different senses of Freedom as applied to Will and to the Moral Progress of Man" (pp. 308-333), are connected in the closest way with the discussions of the *Prolegomena to Ethics*. So far as they simply reinforce Green's own ethical doctrines, they call for no further criticism in these pages. But the comments upon Kant's positions will be very useful to the sympathetic student who, in spite of the best 'wish to believe,' feels himself pulled up from time to time by some of Kant's characteristic doctrines. Thus, for example, the notion that the moral will must be determined by the mere idea of conformity to law, from which all relation to a 'matter' or object is excluded, is admitted to be an impossible demand. "When Kant excludes all reference to an object, of which the reality is desired, from the law of which the mere idea determines the good will, he means all reference to an object *other than that of which* the presentation *ipso facto* constitutes the moral law" (p. 131). In fact, Kant himself in the *Metaphysic of Ethics* implicitly founds the possibility of absolute law upon the existence of an object of absolute worth. Again, Green modifies the rigour of the Kantian antithesis between "the desire for pleasure on the one side (in which case the will is 'heteronomous') and desire for fulfilment of the moral law on the other (in which case alone, according to him, it is 'autonomous')." Moral action involves "the presentation by the agent of himself as an absolute end," but the self thus presented is not "an empty and abstract self"—a mere "subject of law"; it is "a determinate self"—a self determined according to the man's dominant interests. "The conceived object, to which in willing he seeks to give reality, may be a state of himself as enjoying certain animal pleasures, or a state of himself as fulfilling some vocation dimly conceived as belonging to him in a divine plan of the world. . . . Or it may be (and more probably is, most men being neither sots nor heroic philosophers) some state of himself as filling a certain position in relation to his family or neighbours or fellow-citizens, and finding happiness therein. Or it may be an object which could not naturally be described as a state of himself at all, but which is still determined by the relation in which he places it to himself, the ruin of an enemy, the happiness of a beloved person, the success of a political movement, the painting of a picture, the writing of a book, the improvement of his neighbours, the conversion of the heathen." In point of fact, the idea of an absolute and universal moral law arises only at an advanced stage and as the result of *reflection upon* moral experience. Among other points to which attention may be drawn is the discussion of the different senses of the term Freedom in Kant, and in connexion with that the criticism of Kant's distinction between the empirical and the

intelligible character. Kant tends, according to Green, to identify freedom with determination by reason, though he "scarcely seems fully to realise his own identification" (p. 119). Green also points out a variation on Kant's part in the use of the term Will. Using it at first in the generic sense, which includes the good and the bad, the heteronomous as well as the autonomous, will, he came in his later moral writings to use it in the specific sense of the rational will, opposing it in this sense to '*Willkühr*'. On pp. 147 onwards, we have an interesting discussion as to the sense in which it is true to say of the law that it is self-imposed, and as to how far the recognition of it as self-imposed is present, or indeed desirable, in the unsophisticated man. The first part of the discussion again raises the question of the relation of the human to the divine consciousness.

The logical division of the volume is in some respects less valuable than it might otherwise have been, from Green's inveterate habit of going back to fundamentals. Thus in the first section on "The Logic of the Formal Logicians," *i.e.*, Hamilton, Mansel, &c., we are soon led away from the immediate subject and find ourselves in the midst of the proof, so familiar to us in Green, of the thought-constituted nature of reality. In another respect, however, this section is specially interesting from the embarrassment which facts of feeling as such evidently cause to Green's theory. "Undoubtedly," he says, "there is something other than thought. Feeling is so" (p. 181). "The world before there was sentient life was not what it is to us as sentient; the world of conditions of feeling is not to intelligence (even our intelligence) what it is to us as feeling" (p. 180). "We have admitted that the sensitive act is other than any such relation as thought constitutes, and that it is necessary to the reality of the natural thing. It is an event in time, and, as such, the absolute *εἶρον* to self-contained thought" (p. 187). Then arises the same difficulty which we had before in reference to the pure thought of the universal consciousness. "Can relation to sense, as a fact or reality," he asks in a note, "exist for a consciousness not sensitive? If not, how do facts of nature exist for God?" "Is not the notion," he answers in the text, "that an event in the way of sensation is something over and above its conditions, a mistake of ours, arising from the fact that we feel before we know what the reality of the feeling is, and hence continue to fancy that the feeling really is something apart from its conditions? . . . For the only sort of consciousness for which there is reality the conceived conditions are the reality" (pp. 190-1). But if so, what becomes of the reality and otherness formerly admitted to belong to feeling *quâ* feeling as a fact in *rerum naturâ*? From the half-problematic form of this answer, Green would seem to be but indifferently satisfied with his own solution.

In criticising Mill's *Logic*, Green takes up first the question of the Import of Propositions, concluding that Mill is right in hold-



ing that such judgments as 'gold is yellow' are not merely an analysis of a nominal essence, but express belief in regard to an outward thing. The doctrine, though substantially correct, is however inconsistent with Mill's Lockian metaphysic of the relation of the mind to reality. In Section B (of Names) it is maintained that Mill's distinction between singular and general names is more properly a distinction between singular and general propositions. Proper names, according to this view, are in themselves mere sounds representing no mental act at all, but "to the person who uses them they are on every occasion on which he uses them specially connotative". Section C attacks Mill's substitution of a classification of existences for a theory of the categories, and easily shows that the Kantian categories are implicitly assumed in Mill's account. Sections D, F, G, H, are mainly occupied, as already mentioned, with Kantian discussions, and with the author's constructive theory. The criticisms passed upon Mill may be easily deduced therefrom, and are of minor interest. In Section I (Syllogism) he comes to closer quarters, with fatal results to Mill's general theory of inference, and his theory of the syllogism in particular. "Is the 'particular' of which an attribute is asserted in the conclusion one of the particulars which have been already observed to have this attribute, or is it not? If it is, then there is no inference to it. . . . If it is not, how is the inference justified? How is the inference valid unless the *ἐπαγωγή* is *ἐὰν πάντων*? and if it is *ἐὰν πάντων*, how is it inference at all?" (p. 274.) In point of fact, inference has "nothing to do with how often an event happens, but only with the question what it really is that happens in each event. . . . Once know what death really is in the case of a single man, *i.e.*, the conditions on which it depends, then I learn no more by seeing any number of men die. . . . No doubt, in the process of ascertaining what these conditions are, a great number of cases may have to be observed in order to the exclusion of unessential circumstances; but the observation of such cases in order to ascertain what really happens, what are the conditions of the given phenomena in each, is absolutely different from the observation which from the constant occurrence of an event leads to the expectation of its continuance" (p. 275). "Inference lies, not (as Mill says) in the generalisation from observed instances to all, but (a) in the discovery of the real conditions of the observed instances; (b) in the discovery whether other apparently like instances are really like. Given the real similarity of the other instances, there is no inference to them" (p. 277). In the following section, K, the same line of thought is applied to Mill's account of Induction. "The whole business of science," it is well said, "is to substitute real identity (identity of conditions) for mere similarity between phenomena." Mill's confusion in regard to the axiom of the uniformity of nature (better named, according to Green, "the unity of the world") is successfully exposed. In the old contro-

versy between Mill and Whewell, as to whether conceptions are abstracted from facts or superinduced upon them, the dispute, it is pointed out, turns on a false view of the relation of the mind to facts. "When a conception is said by Mill to be 'abstracted from facts' or 'from phenomena,' this can only mean that it is abstracted from our observations of facts, from the facts as they are for the consciousness of the person who is supposed to make the abstraction" (p. 291). Such a statement, then, "puts the cart before the horse; till the phenomena have been connected by such a conception, they have not the character from which it can be abstracted" (p. 292). The gist of the last section, L, on Causation is a refutation of the Humian account of causation, simply by the denial that any idea or object *can* be "considered in itself". "The '*minimum intelligibile*' in the way of feeling (the only experience which amounts to a knowable fact) is a feeling related to another as a changed appearance or affection of something of which the other was an appearance or affection. . . . The conception of this something develops, as everything is found to be relative to another, and to derive all that it is or has from that relation, till the 'something' becomes 'nature' (of which Lewes has at last discovered that to say it is uniform is an identical proposition), which remains the same in all its changes" (pp. 301-2).

ANDREW SETH.

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*Esquisse d'une Classification systématique des Doctrines Philosophiques.* Par CH. RENOUVIER. 2 Tomes. Paris: Au Bureau de la Critique Philosophique, 1885, 1886. Pp. 490, 420.

The historical view of systems that makes up the larger part of these volumes, itself the outcome of some of M. Renouvier's most original ideas, has enabled him, in his return from history to criticism and construction, to express these ideas with renewed force. Both as a history of philosophy from a clearly defined point of view, and as the latest statement of M. Renouvier's own philosophical position, the whole work is of the highest importance and interest.

The history of thought is viewed not as a series of approximations to a final doctrine which includes all truth in itself, but as a process in which antagonisms become more and more definite; till at length the theses and antitheses of the chief antinomies of philosophy are marked out into two coherent systems, opposed to one another in detail and as wholes. From the beginning of his philosophical studies, M. Renouvier tells us, he was struck with the inward presence of antinomies in the greater philosophical systems. He found that in a small number of systems, as in those of Nicholas of Cusa, Giordano Bruno and Hegel, the attempt was openly made to solve all antinomies by a denial of the applicability of the law of contradiction to real being; and for some

time he was under the fascination of this idea, and himself tried to construct a philosophy that should reconcile all doctrines by combining their contradictory positions. With this view he was never able quite to satisfy himself; and at last he decisively rejected it. The result of this decision was the conviction that from the beginning of philosophic thought truth has been on one side of each of the great philosophic controversies and error on the other, and that the chief philosophical directions remain always the same. There has been progress in accuracy of view of details, in understanding of opposing positions, and in the statement of these positions and their logical grouping; but none of the chief directions has ever succeeded, during a period of philosophical freedom, in excluding the others; and since differences of personality become accentuated instead of disappearing, it is not likely that by free consent at least any of them will ever finally gain the mastery. For it is personality that determines the character of every philosopher's view of the world as a whole. Each view, the true view as much as the false, is a belief, determined partly by the "passive factors" of circumstances and temperament, but ultimately by an act of choice. The great opposing systems which combine in logical order the theses and antitheses of the historical antinomies, and are now in process of being definitely formed, are, on the one side, a Pantheism based on the larger hypotheses of science carried beyond scientific limits, and laying claim to the certainty of "evidence"; on the other side a Theism based on Kant's postulates of the practical reason, and professing "belief" not "evidence" as its ultimate ground of certainty. To the latter system the author proclaims his own adhesion.

By thus making plain to the reader which side he takes, M. Renouvier has hoped to gain in impartiality, and he has succeeded. A writer who is attracted by strong and decided affirmations and negations, and who sees in the history of philosophy the tendency of systems to become more individualised rather than the tendency to compromise and conciliation, is, besides, under no temptation to tone down his opponents' views, and can do justice to them without finding in them resemblances to his own. M. Renouvier's treatment of views opposed to his own is frequently even more than impartial. The intellectual sympathy which he displays with the pantheistic ideas of the early philosophers of Greece does not disappear when he comes to deal with modern philosophers; but what has struck him especially is the far-reaching character of the ideas thrown out at the opening of each period of speculation, and in times of revolutionary change. We are wrong, he remarks, in thinking the height of abstraction reserved for an advanced and complex state of intellectual culture. Except in morals, the true initiators, and often the most profound, in that their views were more exclusive and more absolute, were the philosophers of the first period of Greek

thought. And in this period, as M. Renouvier fully admits, the predominating speculative tendency was pantheistic.

The pantheistic doctrine which was predominant in the earliest Greek speculations, which has found its most rigorous expression in Spinoza, and which is equally the doctrine of Hegel and of the contemporary philosophy that claims to be based on physical science, is, when quite consistently developed, a doctrine of the Thing or permanent substance of which all personality is a passing mode, as opposed to the Idea or phenomenon which has no reality except as part of a consciousness; of the Infinite as opposed to the Finite; of Evolution as opposed to Creation; of Necessity as opposed to Liberty; of Happiness as opposed to Duty; and of Evidence as opposed to Belief. This sixth antinomy was the last to receive clear expression. Till Kant, with hardly any exception, the only positions as to the criterion of certitude were those of "evidence" and "scepticism". This last doctrine left the practical choice to be determined, not, as it must be according to the true doctrine of belief, by reasons which although not purely intellectual are valid for all men, but by custom and authority. According to the temperament of the sceptic the attitude finally assumed may be—to take typical examples—either that of Montaigne or of Pascal. Once the doctrine of a belief determined by active as well as passive factors of the personality and finally not on intellectual but on moral grounds,—in its distinction equally from sceptical suspension of judgment and from a supposed "evidence" or "vision" that gives assent in spite of the will,—has been clearly disengaged, all the other theses and antitheses are seen to depend on the position taken up with regard to this antinomy. Hitherto they have always, even in the most rigorous systems, been combined with more or less inconsequence. Till quite recent times Idealism, for example, had not received accurate expression; there always remained a mixture of realism, of the doctrine of the Thing or "subject" as it is in itself apart from consciousness. And the progress to true idealism has been accomplished chiefly by means of the works of the modern empirical school, more favourable to the intellectualist doctrine than to the doctrine of belief, and by mediæval Nominalism, the scholastic form of empiricism. Again, the doctrine of "the realised infinite" has always formed part of Christian theology, having got there by a confusion of the idea of infinity in the sense of moral perfection with the infinite of quantity in space and time. Yet logically this leads to the pantheistic doctrine of the infinite and eternal substance, and to the denial of an absolute beginning of action, that is, of real creation and of free-will. By another inconsequence, the ethical doctrine of the Stoics and of Spinoza was a doctrine of Duty, an "ethics of Reason," essentially identical with the Kantian ethics, and not a doctrine of happiness such as ought to have followed from their system of pantheistic evolution. The definite statement of the antinomy

of "intellectualism" and of the "practical reason" removes these and other inconsequences, and makes the constituent propositions of the two systems arrange themselves at last in perfectly logical order.

Regarded metaphysically, M. Renouvier's doctrine is a phenomenon like that of Mr. Shadworth Hodgson. The difference between the two doctrines consists chiefly in this, that Mr. Hodgson follows more the tradition of the English experiential school, M. Renouvier that of the school of Continental rationalism. At the same time Hume, as represented by the *Treatise*, has had an influence on M. Renouvier comparable to the influence of Kant on Mr. Hodgson. In their practical outcome the two doctrines are not unlike, both philosophers having accepted from Kant the distinction of the "practical" and the "speculative" reason. Neglecting minor differences, then, let us ask: What is phenomenism as distinguished from other doctrines that also claim to be idealistic?

According to M. Renouvier, the ancient idealistic doctrines, such as that of Pythagoras, which tried to account for experience by the limiting mind, as opposed to unlimited matter, which was in various forms the principle of the Ionians, failed for this reason, that they took one particular formal element in mind and "hypostasised" it. "Number," the principle of the Pythagoreans, although a formal mental principle, became, when viewed in isolation, a "thing," just as much as the atom of Democritus, the most purely material of all the "physical" principles. On the other hand, the atom, although regarded from the first as an element in things, was not a datum of sense, but the result of an abstraction, and thus had a sort of mental character of its own. The two conceptions, therefore, opposite as they seem, differed little in effect. And instead of giving their ultimate explanation of things in terms of personality, the Pythagoreans, and the idealist schools of antiquity generally, fell back into a system of pantheism. With the Pythagoreans, for example, all phenomena became parts of a "mathematical evolution of the multiple and the one". In modern times the doctrine of Hegel—described by M. Renouvier as "a Platonism with Eleatic basis, joined to an attempt to trace the history of the Idea confounded with the history of the world of phenomena"—illustrates the same tendency. The "thought" of Hegel is an element in mind hypostasised; and, when the bias of the more orthodox disciples of Hegel is got rid of, thought becomes a "thing" figured as evolving itself necessarily and as having personality for a mere temporary phase. Hegelianism thus comes not to differ intrinsically from a materialistic doctrine of evolution.

From these criticisms of other forms of idealism, it appears that what distinguishes the phenomenist doctrine is the refusal to regard any one element in mind, however capable of distinction by analysis, as having a real existence by itself apart from the rest.

That is, the distinguishing feature of phenomenism is its principle of "the relativity of representations" to one another. It pushes this principle to the extent of affirming that, since actually every phenomenon appears under the form of personality, there can be no ultimate philosophical explanation of things otherwise than in terms of personality. A doctrine such as that of Lotze and his disciples, which makes personality ultimate in its explanation of things, and is idealistic as regards the external world, would nevertheless be rejected by a phenomenist because it retains "the substance of mind"; its monads being miniatures of the individual mind hypostasised. The doctrine that speaks of "elementary feelings" as things-in-themselves does not, like monadism, assume a substance of mind under the name of "the soul"; but from the phenomenist point of view it is realistic as the Hegelian doctrine of "thought" is realistic, because it hypostasises the material element in mind as Hegelianism hypostasises the formal element; and of course it does not place personality at the beginning of things.

Except on one point, M. Renouvier concedes that the pantheistic system, although incapable of demonstration, is theoretically impregnable. The one point where it can be assailed on grounds of pure logic is its assertion of a real infinite of quantity, which follows from "the doctrine of the thing" as opposed to "the doctrine of consciousness". "The actual infinite number" required by the existence of an infinity of distinguishable phenomena in space or time is self-contradictory. The law of contradiction, however, in its application to realities, has been denied by consistent partisans of the infinite; and to assert it as universally true is, like any other proposition of the kind, an act of belief. Even in this case, therefore, it is in the end moral considerations that must determine the choice of the thesis or the antithesis. From the point of view of the doctrine of consciousness there can be no question of any actual existence that is other than finite. This truth was expressed by the Pythagoreans in their theory of the limit; but they in part destroyed its effect by retaining "the unlimited" as a kind of matter upon which form is imposed. The doctrine of the infinite and absolute, as it has asserted itself in Christian theology, is, however, a falling-off from what we may regard as the typical Greek conception of reality as belonging to a limited, ordered universe, and of the unlimited as essentially unreal. The "realised infinite," M. Renouvier shows, has no place in mathematics. And it is there, if anywhere, that we should expect to find it; since mathematicians use a terminology that seems to imply infinities of all orders. The notion of a real infinity, however, is not only not employed by mathematicians; it is no more required for the philosophical explanation of any mathematical or other scientific conception. Everything that can be expressed in terms of consciousness, that is, everything that can be thought as real, is finite. Consciousness itself, per-

sonality, is essentially finite. The "doctrine of consciousness" requires that phenomena should have a beginning, but not necessarily that they should have an end; for the absence of a beginning implies a past eternity filled with events, that is, a "completed infinite"; but future eternity is supposed never to be completed; the series of phenomena, even if it should never have an end, will always be capable of expression by a finite number. Phenomena have had their beginning in a personality, which, like other personalities, is necessarily finite. The universality of law—the resemblance of the order of phenomena in different persons—requires that there should be one supreme Deity: M. Renouvier now regards this argument as conclusive against the possibility he had formerly left open for polytheism. The Deity must be held to be limited in knowledge by "the real contingency of futures". For, corresponding to creation in the universe as a whole, there is a real beginning of a new series of phenomena, a cause that is not also an effect, in certain decisions of the human will. Thus the doctrines of the finite, of creation and of indeterminism form a connected group opposed to the doctrines of the infinite, of evolution and of the absolute determination of all phenomena as parts of an eternal series; and these groups of doctrines attach themselves on the one side to "the doctrine of consciousness," on the other side to "the doctrine of the thing".

By "evolution" M. Renouvier understands here "philosophical" as distinguished from "scientific" evolution. The special evolution-theories of the sciences, like other special scientific theories, cannot logically, he holds, be extended under the name of "science" to the whole order of the world. "Science," when it is anything more than a collective name for "the sciences," means one of the two opposing philosophies; and this philosophy has no right to claim for itself, as it does by assuming the name of "science," the certainty that each of the special sciences has within its own limits. Of the philosophical doctrine of evolution there are two forms—the "statical" and the "dynamical". Spinoza's doctrine of modes is a real evolution-theory of the first kind, although it makes no attempt to express in a single formula the law of the series, which it assumes, of absolutely determined and eternally changing phenomena. Theories that are evolutionist in the more special "dynamical" sense, such as that of Leibniz—which was the first to combine the ideas of physical evolution and of human progress—introduce the conception of an end towards which the evolution of the world is the necessary movement. They are less consequent than Spinozism; since they have to borrow the idea of end from the doctrine of consciousness.

Immediately connected with the antinomy of necessity and liberty is that of happiness and duty. No doctrine of necessity, M. Renouvier contends, is consistent with a morality that makes the correlative conceptions of "duty" and "right" fundamental.



For there can be no "obligation" to do that which, by the mere fact of its not being done, is shown, according to the doctrine of necessity, to have been impossible. Determinism reduces all moral questions to questions of selecting the right means for attaining ends fixed by personal taste. The end is not necessarily egoistic; but if happiness is the only conceivable end, man has, so to speak, "the right to egoism". The sentiment of altruism can only be appealed to so far as it exists; and it can never acquire the character of an imperative. Eudæmonists, therefore, for the most part, aim at producing by education artificial associations of ideas of the good of society with ideas of personal good. This supposes control of public opinion and of the machinery of education by those in whom the idea of good happens to have taken the altruistic form; and this control must be exercised with a view to forming all minds according to a single type. The eudæmonist morality of "benevolence" or "sentiment" thus lends itself naturally to theories of political and social despotism. And that the putting of some "good," however elevated, in place of the conceptions of duty and right, has actually had such theories for its consequence, is seen in the history of speculations that make the idea of good supreme, from Plato's Republic to the political system of Comte. J. S. Mill perceived this tendency of "benevolent utilitarianism" and tried to avoid it, but without success, so far as he argues from his own theoretical point of view. He perceived also the unsatisfactoriness of a morality that depends on artificial associations dissoluble by analysis. In Mr. Spencer's ethical doctrine there is a falling back on the idea of an inevitable progress of the human race, as the means of bringing about a spontaneity of benevolent sentiment; but in the meantime there is no foundation for really ethical "injunction". As in other utilitarian systems, when there is no question of enforced obedience to external standards all depends ultimately on personal taste. It is the same with the morality of pessimism. Schopenhauer, for example, who makes "pity" take the place of the "sympathy" of optimistic utilitarianism, entirely rejects the idea of duty. Essentially, contemporary optimism and pessimism are at one as to the ethical standard. The opposite ethical doctrine is to be found in the Stoics and Spinoza; but it received for the first time perfectly accurate expression in Kant's *Practical Reason*. The idea of duty is implicit in Stoicism as "conformity to the order of the universe"; that of liberty as "independence of external things". On the one side, however, there is as yet no true idea of obligation, and on the other side there is theoretical determinism. So far as Kant retains the idea of absolute determinism in the phenomenal world there is an inconsequence in his system also; but in his ethical formula, the categorical imperative, he has corrected both the principal defects of Stoicism. Kant's great achievement was to make ethics independent of every system of metaphysics. In

consequence of this he was able to found his metaphysical doctrine on his ethics, substituting practical "postulates" for theoretical "dogmas". The relative positions of practice and speculation are thus reversed. There is no longer any apparent dependence of morality on cosmical physics and the law of evolution of the world; "conformity to nature" has become explicitly what it always really meant, conformity to the nature of reason. Duty has been rigorously defined, and the doctrine of happiness placed in its true dependence on the morality of duty.

For a doctrine of happiness is after all necessary. The question of optimism and pessimism is not indifferent to philosophy, but is a question which, once it has been raised, requires a decisive answer. Now the Kantian doctrine enables us to view happiness as dependent on our own attitude towards the world, not on a previous determination of the nature of the world. There are two beliefs that it is theoretically possible to hold: the belief that duty and happiness are in the end brought into harmony; and the belief that the idea of justice has no application in the universe as a whole. We are under the moral obligation to choose that belief which will enable us to act best. This position is fundamentally that of Pascal's "argument of the wager". The necessity of acting renders it impossible to refrain from choosing; and we must choose the alternative on the side of which our highest interests are placed. There is this defect in Pascal's argument—that one particular doctrine, the doctrine of the Catholic Church, is arbitrarily taken as the subject of the wager. An opponent can object against Pascal the merely local and temporary character of this doctrine; and then there is the scientific test of historical evidence. The argument of Pascal, however, can be thrown into a universally valid form. It has been "reduced to good sense" by Locke, and cleared of even the appearance of making an appeal to "the lower interests" by Rousseau. The principle of its reduction to a valid form is that we must seek "the maximum of security in the minimum of determination of doctrine" (ii. 334). Kant's postulates of the practical reason—God, Freedom and Immortality—are found to be at once necessary and sufficient. Freedom is required in order to make moral obligation possible; immortality—or at least continuation of life after death—to make possible the realisation of the ideal of justice in the universe; theism, inferred, as we have already seen, from the necessity of a creative act and the universality of law, is required as a security for the final ordering of the universe in accordance with the principle of justice. A necessary part of the system of the postulates is that physical evil should be traced to moral evil. This is made conceivable by the doctrine of free-will as "a gift" which could not be conferred without the power being left to the creature to choose wrong as well as right. By the existence of a real free-will the sense of sin and its reality are also explained.

We come at last to the antinomy of evidence and belief, on which, according to M. Renouvier, everything else depends. Real indetermination of actions, he maintains, requires real indetermination of judgments. This doctrine of the indetermination of judgments is traced to Rousseau. Rousseau's ethical doctrine, although superficially it looks like a "doctrine of sentiment," is really, M. Renouvier contends, a "doctrine of the practical reason". The admiration of Kant for Rousseau is well known; and M. Renouvier traces Kant's optimism—in viewing the history of the world as determined in accordance with the postulates—to Rousseau, as he finds in Voltaire the literary inspiration of Schopenhauer's pessimism. That belief—the free choice of a judgment as to the ultimate nature of things—is something more profound than "evidence," must be the view of those who hold to the doctrine of consciousness. To affirm the existence of other personalities and of the uniformity of nature is to go beyond what is given in the actual phenomena. We are not, indeed, without motives for believing; there is evidence that suggests belief; but there is also an active factor. The mind in part creates the truth to which it gives its assent, as it is creative in volition. Those, on the other hand, who decide for the pantheistic system of the eternal evolution of an infinite substance, always hold in some way, even when, like Mr. Spencer, they speak of ultimate "beliefs," that they are asserting a truth forced on the mind from without, or given in a sort of intellectual "vision," a truth of which denial is impossible. But to anyone who speaks of universal beliefs, of propositions the negation of which is inconceivable, the history of philosophy is a sufficient reply. There is no proposition, not even the law of contradiction, of which the application to real being has not been denied by some philosopher. The appeal to "evidence" is therefore only a statement of the belief of a particular person that he possesses a certain kind of insight which, it must be supposed, he has by necessity, while others are necessarily in error.

Since M. Renouvier makes everything depend on his doctrine of belief, we must examine this doctrine closely before proceeding to criticise any other part of his system. The choice of an ultimate belief, in M. Renouvier's view, is an act of free-will; but he does not represent the doctrine of belief as absolutely bound up with indeterminism. Indeed he shows, in more than one passage, how a determinist may recognise the active factor in judging. Indeterminism being excluded, there seems to be no reason why an opponent on ultimate philosophical questions should not admit the essential part of M. Renouvier's contention, *viz.*, that there is a personal element in all systems of metaphysics; that in this element there are active as well as passive factors of belief; and that whenever we go beyond the mere present phenomenon there is a "wish to believe" one proposition rather than another, determined either by intellectual or practical

interests. All beliefs are of course subject to the tests of verification and of consistency. Beliefs that cannot bear these tests must disappear sooner or later, whether we wish it or not. M. Renouvier does not deny this; but to anyone who should insist that for these reasons "evidence" is more profound than "belief," he would reply that there is more in the great philosophical systems than can be completely submitted to either test. The pantheistic doctrine which is the final outcome of the set of positions opposed to his own is, he admits, as consistent with itself as the doctrine of the practical reason. To the positivist or agnostic objection that there is no need to choose between opposing systems of metaphysics at all, he replies that not to choose would be to take custom instead of reason for the guide of life; but that those who use this argument have really made their choice, and that they imagine themselves to have "evidence" sufficient for the refutation of the view they practically reject.

To the belief at which M. Renouvier arrives on the ground of the Kantian postulates, it may be objected, from the practical point of view, that the construction is too "problematical" to have any real influence on conduct. The objection he himself makes to Pascal's argument might also be brought against it. This type of theism, it might be said, is after all only the ghost of a particular historical religion, not really, as is contended, "*quod semper, quod ubique, quod ab omnibus*". Its special affinities are seen by M. Renouvier's regarding as possible an alliance between "the Criticist philosophy of consciousness" and a Christianity cleared of the dogmas of "absolutist" and "infinetist" theologians. A religious creed going beyond the "necessary and sufficient" postulates of the practical reason, he allows to be legitimate in its own sphere. Although it may not be confounded with philosophy, it may be held as a kind of "philosophic faith". But,—not to pursue these considerations of detail,—there is a fundamental objection to the whole method of "the practical reason".

M. Renouvier, it must be remembered, contends for an element of active desire in the affirmations of *both* the great philosophic parties. In the case of the party opposed to his own, he often speaks of this desire as having its motive in intellectual as distinguished from practical interests. Yet, rather strangely, he never definitely asks whether the desire that expresses itself here may not be that by which exclusively we ought to be influenced in the decision of the last questions of metaphysics as of the first questions suggested by scientific curiosity. He never seems to conceive it to be possible that anyone who has seen that there is active choice of belief should still maintain the primacy in metaphysics of the theoretical reason; should regard the introduction of ethical considerations at the point where the highest speculative questions are reached as being just as irrelevant as it would be in physical science. The exact omission that is made is seen most

clearly in M. Renouvier's view of Spinoza. An "inconsequence" is detected in Spinoza's passage from his pantheistic metaphysics to an ethical doctrine of an elevated kind. The moral emotion that finds expression in the ethics, it is implied, ought not to have been excluded from the determination of the metaphysical doctrine; since it has been excluded, however, its coming in afterwards is unjustifiable. But, according to M. Renouvier's view, Spinoza's theoretical doctrine must have been in part emotionally and actively determined; for no doctrine escapes this necessity. If it was not determined by an ethical emotion, by what kind of emotion, then, was it determined? Clearly an incomplete enumeration has been made of the elements of Spinoza's philosophy. Account has been taken of the high moral emotion as well as of the passionless analysis; what has been omitted is the "*amor intellectualis*,"—the desire for perfect completeness of explanation by purely theoretical and "immanent" principles. But is not this the properly philosophical emotion? And does not its dominance in what M. Renouvier calls the "intellectualist" systems furnish a presumption that these, and not the "practical" systems, have given the right answers to the perennial questions of philosophy? The emotion directed to practice has its scope in the discrimination of right and wrong actions or dispositions. The philosophical emotion is an impulse towards what M. Renouvier himself calls "the ideal of science". Can any reason be given why, when we are approaching this ideal, we should be turned back from it by views of practical utility? It is not as if there were no positive impulse conflicting with affirmations made in the name of the practical reason. If this were so, we should have remained for ever absolutely under the dominion of practical considerations; the idea of a disinterested view of the universe would never have occurred to us. But, when this idea has once presented itself, has not "the practical reason" the appearance of being in intellectual things something of an interloper?

Of course philosophy, if it is to be worthy of the name, must somewhere make a return on practice, so as not to abandon life to the guidance of custom and unreasoned opinion. But M. Renouvier shows that it was exactly in antiquity, when the primacy of the theoretical reason was unquestioned, that philosophy applied itself most to practice and had most practical influence. After remarking on the comparative weakness of modern philosophy, beginning with Descartes, on the practical side—the *Ethics* of Spinoza being mentioned as an exception (ii. 123-4)—he explains the "intellectualism" (in this sense) of modern philosophy by the circumstance that the practical field was preoccupied, and that for a long time philosophers were warned off from it. The doctrine of "the practical reason," however, seems to be anything rather than the correction of this kind of intellectualism in modern philosophy. If philosophy, instead

of moving away from practice and viewing life impartially in order to return afterwards more effectively to its practical regulation, is to keep practical considerations in view in its metaphysical constructions, of two indemonstrable assumptions to take not the one that fits in best with the ideal already suggested by science, but the one that seems most likely to encourage action, this means that action, just as with the Pyrrhonists, will fall under the dominion of custom. For practical considerations introduced not merely as a stimulus but as a guide, prior to the final theoretical construction, can only be considerations depending on those unanalysed aims of which it is a function of philosophy to ascertain the comparative value; considerations, therefore, which from the first invalidate the critical function of philosophy with regard to practice.

This is the effect that a doctrine of the practical reason would seem likely to produce. Yet it must be acknowledged that there is no trace of this kind of effect on M. Renouvier's own practical philosophy. He applies an equally severe analysis to all the phrases that have been proposed as solutions of the problems of the ethical end and of the worth of life; keeping always in view the essential question of the aim of the individual. In the case of so consistent a thinker as M. Renouvier, it would be absurd to say that this is in spite of his theory, not because of it. We must try to find an element of truth in the doctrine of the practical reason that may be recognised by those who cannot in any sense accept that doctrine as a whole.

M. Renouvier, as has been seen, claims for Kant the merit of having been the first to make explicit the independence of the ethical end on particular systems of metaphysics. This truth is already present, he admits, so far as its effective application to conduct is concerned, in the "independence" of the Stoics, and in Spinoza's doctrine of freedom as action from within; but this "independence" or "freedom" is represented at the same time as a harmony with external nature, or even sometimes as "obedience" to nature, and is not defined strictly in terms of personality. M. Renouvier's analysis certainly enables us to understand better the fascination which Kant's formula has exercised. The truth of "the autonomy of ethics," we may be disposed to think, is expressed most clearly by M. Renouvier when he states it without reference to "the practical reason"; but that it should appear as if bound up with the Kantian doctrine is explicable. As soon as it is seen that ethics, although dependent for its working out on theoretical knowledge, is independent of any theory of the universe so far as the determination of its essential end is concerned, the preconceived idea of a subordination instead of a co-ordination between metaphysics and ethics takes effect in a simple reversal of their previous order. The doctrine of the practical reason, therefore, may be regarded as an exaggeration of the truth of "the independence of ethics".

The process that has just been described is aided by a certain incompatibility, not intellectual but emotional, of the theoretical and the ethical view of things. The ethical view of external nature must always be somewhat Manichæan. M. Renouvier has illustrated this by quotation of the celebrated passages from Mill's *Essay on Nature*. Those, on the other hand, who take by preference the pantheistic or intellectualist view, tend to pass from admiring contemplation of the order of the universe to assertion of its ethical perfection. This tendency is found, often unaccompanied by pantheism, in men of science. M. Renouvier contrasts, for example, Darwin's admiration of the law of survival of the fittest, regarded hypothetically as imposed by a creator, with Mill's reprobation of laws of conflict and mutual destruction among living beings. And more than once he shows the ethical superiority of Spinoza's system—attained, as he thinks, by the inconsequence of practically detaching ethics from metaphysics, when, according to Spinoza's principles, ethics should be subordinate—over the optimistic doctrines of Leibniz and Hegel. This last comparison may furnish a suggestion for solving the difficulty. Is not the remedy to distinguish clearly the ethical from the theoretical point of view, neither subordinating nor suppressing either ; to avoid, on the one hand, affirming an ethical end of the universe, and on the other hand to refrain from all attempts to find a moral justification of anything in the mere fact of its necessary determination according to universal laws ? The refusal to compromise between points of view, each maintained as separately valid, is not really an inconsequence.

A distinction of points of view may help to clear up the antinomy of happiness and duty. We may admit that the conceptions of obligation, of duty and of right are not ultimate in ethics, without denying them all relative validity ; without declaring them to be mere illusions, and proposing to substitute direct seeking of the good of others under the impulse of sympathy or pity for the idea of justice as the foundation of the social order. There is no doubt that the systematic working out of some doctrines of "happiness," or of a "good" as the ethical end, has led to the theoretical suppression of personal freedom. This, however, is due to the special character of the good that is aimed at ; in these cases some social good is regarded as superior to the good of all individuals. Those who recognise, with M. Renouvier, that the highest good, while attained socially, must be a good for the individual, and that personal freedom is a condition of its attainment, are entirely at one with him practically, although they may make rights and duties deductions from the conception of good, not ultimate conceptions. To the making of obligation ultimate it may be objected that the word "obligation" implies command from some source ; and that a command, as M. Renouvier fully recognises, cannot be the ultimate reason in ethics. The empiri-



cal doctrines that trace ethical precepts to commands, of which he acknowledges the merit as attempts to account for obligation on egoistic grounds, justify the commands finally as means to a good that can only be attained by social action according to definite rules. But to these doctrines, and equally to those that make more use of sympathy, it is objected that everything depends on the individual taste and disposition. Suppose that anyone is not sufficiently sympathetic; or that, having recognised that the existence of the social order and (as part of it) his own action in accordance with justice, is on the whole to his personal advantage, he should nevertheless decide to evade the requirements of justice and gain a greater advantage, whenever he can escape detection: how is the moralist to convince him that he ought to act rightly? To this it can only be replied that voluntary acceptance of an ethical code does after all depend on the empirical fact of the social nature of man; and the degree in which men act according to the principles they accept, on the degree in which certain dispositions are present. The admission of this, with all its consequences, no doubt supposes a different conception of personal merit from that of Kant. On the whole, however, M. Renouvier's ethical antinomy, although some irreducible differences are left, does not seem to be quite so absolute as he contends.

Of the remaining antinomies there is at least one—that of finite and infinite—where those who are in general agreement with M. Renouvier would select the antithesis. The opposition of evolution and creation, which, when they are considered as philosophical doctrines, seems at first irreducible, can be solved by an evolutionist without absolute denial of creation. For creation, in the sense in which M. Renouvier attributes it to the human mind (with exclusion of indeterminism) may be perfectly well regarded as the outcome of a universal process of evolution. This explanation goes naturally with the admission in a certain sense of M. Renouvier's doctrine of belief. He himself is the first to admit that as regards the antinomy of "Thing" and "Idea" that heads the series, all schools of philosophy are now in a sense idealist, as at the beginning all were in a sense realist. To the contemporary "school of the ideal," represented in different ways by M. Vacherot and M. Fouillée, he takes up an attitude of opposition, on the ground that it denies in effect the existence of the ideal outside the human mind; yet he has affinities with that school. There is much resemblance, for example, between his view of the infinite and M. Vacherot's, although their affirmations about the reality of the infinite are quite opposed. Both philosophers bring out with great distinctness the opposition of the idea of perfection, which, as they see, must be that of the highest degree of definite order and clear consciousness, and therefore essentially finite, to the idea of unlimited extension or force, the *ἄπειρον* of Greek philosophy, chaos as opposed to cosmos. Again, M. Renouvier's re-statement of Pascal's "argument

of the wager" has something in common with M. Fouillée's doctrine of "risk" in action and speculation. It is true he does not end with doubt but with belief; yet belief, in distinction from knowledge, implies at least the possibility of doubt.

But although two types of thought may not be quite so clearly marked out as they ought to be according to the theory embodied in M. Renouvier's classification, it is only with the aid of a classification such as this that an adequate account can be given of the whole movement of philosophy. The idea of a perennial opposition of philosophic doctrines, and of increasing distinctions among them, is not that which historians of philosophy like best to dwell on; but now that it has been not merely stated and defended but made the central idea of a systematic classification, it ought to be recognised as at least as important an aspect of the truth as the more common idea of philosophic progress. And M. Renouvier does not, by a movement of reaction, deny the portion of truth that is in the conception of progress as continuous and in the same direction. He recognises the limitations it imposes on his own view, as well as those that are due to what he considers illogical mixtures of doctrines. One ground that a critic might take here is to contend that these mixtures are not all illogical, and that the divergence is really towards several types instead of only two. This would be a criticism in the sense of M. Renouvier's own doctrine. But whatever may be the view taken of the outcome of the classification, there cannot be any difference of opinion as to the value of M. Renouvier's work in detail. Every page of it is full of instruction. To its merits as history this is to be added, that it will compel readers who may have arrived at any fragmentary philosophic view of their own to consider carefully the bearings of this view with regard to the whole, and the direction in which it ought to be developed if they wish to be consistent.

It will be remembered that M. Renouvier finds one logical defect in the system of pantheism to which, as he holds, modern "scientific philosophy" is tending. From the contradiction that is said to be implied in the assertion of infinity, Mr. Shadworth Hodgson, in the first of his two articles on M. Renouvier's philosophy in *MIND*, Vol. vi., has pointed out a way of escape. "The realised infinite," Mr. Hodgson admits, is a contradiction; but the contradiction comes from taking "representation" as coextensive with phenomena, and assuming categories that are "forms of thought, not perception". "If we take the forms of perception, time and spatial extension, as our ultimates, then we shall find that infinity is involved in all perception. Every perceived thing, which is a portion of time or of space, has time or space beyond it. The perception that this happens always, whenever you have a perception, *this* is the infinity of time and space" (*MIND*, vi. 56). It is remarkable that this restoration of an "unexplored remainder," as the necessary background of all knowledge, is made from the point of view of what we may call the experi

ential as opposed to the rationalistic phenomenism. Although not made in the interests of a pantheistic view, it serves to rescue pantheism, as formulated by M. Renouvier, from the contradiction he finds in it. M. Renouvier, however, according to Mr. Hodgson, is right in everything but neglecting the background of knowledge, of which the necessary existence is revealed only in perception. The infinite, in Mr. Hodgson's sense, has no place in mathematical or any other science, but forms the inevitable background of all definite knowledge; practically, the infinite, when dealt with by thought, becomes what M. Renouvier wishes to substitute for it in all cases—a "possible indefinite". The section in which M. Renouvier discusses the antinomy of infinite and finite is, it may be added, one of the most valuable parts of his book. The real matter in dispute is disentangled from the complications of scientific hypotheses, and is shown to be a rational question, which, if it is to be solved at all, will not be solved by the mere "progress of science" independently of philosophic reflection. It is above all in making clear the true character of questions of philosophic criticism such as this, their fundamental position with regard to the sciences, their persistence throughout all stages of scientific development, and their insolubility except by criticism applied directly to consciousness, that the merit and distinction of M. Renouvier's method consist. Whether we are able to accept his solution of any particular philosophic problem or not, his statement of it may always be taken to be, as far as it goes, perfectly logical, and an indispensable basis for further study.

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THOMAS WHITTAKER.

*Le Sommeil et les Réves, considérés principalement dans leur rapports avec les Théories de la Certitude et de la Mémoire.* Par J. DELBŒUF, Professeur à l'Université de Liège. "Le Principe de la Fixation de la Force." Paris: F. Alcan, 1885. Pp. vii., 262.

The name of Delbœuf is less widely known in this country than it deserves to be. His works in logic and psychology mark him out as a writer of sound knowledge and of remarkable penetration. The present volume, briefly noticed on its appearance in *MIND*, x. 472, is, by reason both of its topic and its mode of handling this, very well fitted to give an impression of the writer's qualities as an observer, a thinker and an expositor.

No class of psychical phenomena has received less illumination from science than dreams. Some psychologists pass them by altogether, while others are apt to deal with them in a very hasty and superficial manner. The reason of this neglect is not far to seek. In the nature of the case the facts are exceedingly difficult to reach. Even if it is true that sleep is a continuous state of dreaming, it is no less true that comparatively few dreams persist after waking with a distinctness fitting them to be the

subject of careful scientific study. And in order to gain any knowledge of the phenomena exceptional pains have to be taken, which may well deter most men from making the attempt. Nor is this the only difficulty. As has been observed by ancient and modern writers, dreams are not common phenomena but confined to the individual, and this circumstance makes it extremely difficult to compare observations so as to arrive at one generally acceptable theory of their nature and causes. Of late, however, the subject has been taken up with real scientific seriousness, and we may perhaps look forward to a not distant time when, as the result of a more systematic study of accessible facts, the chaos of dreamland will be reduced to psychological order. Prof. Delbœuf's volume may safely be included among the valuable works of research which have recently helped to clear up the obscurities of the subject.

The volume opens with a critical sketch of some of the works on dreams—those of Spitta, Radestock, Stricker, Maudsley and others—which have appeared during the last few years. While recognising in these real contributions to our knowledge of the subject, the author finds that they do not offer an adequate theory of the phenomena. Thus, to take one of the most elaborate treatises, that of Radestock, he finds fault with its very definition of the dream, *viz.*, the continuation of the activity of the mind during sleep, and proposes as “infinitely preferable” that given by Aristotle, “the image produced by sense-impressions when one is in a state of sleep and in so far as one sleeps”. To hear faintly the barking of a dog in sleep is not, says our author, to dream. He objects to all theories that would explain dreaming by a complete suppression of certain faculties or modes of mental activity, as self-consciousness, volition, the moral sense, &c. The writer's remarks on the doubling and even the trebling of personality in dreams, *à propos* of Radestock's theory of a suppression of self-consciousness, are peculiarly striking and suggestive. He finds in these phenomena merely a further development of the tendency of the waking mind to dramatise and give independent embodiment to the processes of thought.

After this critical review Prof. Delbœuf has a first section on the relation of the dream to the theory of certitude. He begins with a distinction between perception and what he calls “conception”. The former is accompanied by a belief in an external reality, which, like all belief, is the result of habit. How the mind comes by such a habit of projecting sense-impressions Prof. Delbœuf does not explain beyond saying that the individual derives it from his ancestors. One is a little surprised to hear the author remarking that in its essential psychological characters the conception does not differ from the perception. “The distinction between the two rests upon an extrinsic circumstance, the presence or the absence of the object as far as perceived.” But he cannot of course help seeing that, if there is no psychological difference

between the percept and the image, we could never have learnt to distinguish the two under ordinary conditions, and so he has to fall back on the crude distinction drawn by Hume and others, *viz.*, the superior vivacity of the percept. Assuming this to be an all-present and sufficient mark of the percept, he follows M. Taine, to whom however he does not refer, in regarding the illusion of the dream as due to the suppression of the more vivid mental states excited by external objects. We believe in the reality of our dream-images, not because they differ in absolute degree of vivacity from ordinary images, but because, owing to the exclusion of external impressions, they have gained enormously in relative force. I am not quite sure that I fully understand Prof. Delbœuf here. He can hardly mean, I fancy, that in the state of sleep images do not persist and master the attention with a force incomparably greater than that of waking images, even when, as in shutting the eyes in a quiet room, the effect of external impressions is very greatly reduced. The vividness and distinctness of detail with which one is often able to recall a dream immediately after waking, and when the fresh impression of the external world is particularly powerful, points, I think, unmistakably to the absolute vivacity of the dream-image. To say that the image can only attain to this degree of vivacity on the condition that external impressions are withdrawn is one thing; to say that it has only gained in relative vivacity is another. Prof. Delbœuf, in discussing the criterion of true perception, appears to make far too little of the coherent testimony of the different senses. Also, he writes hastily when he says that he only knows of one sense that is capable of correcting the others, *viz.*, touch; for it is a familiar fact that we rid ourselves of the momentary illusion due to a subjective skin-sensation by a glance of the eye. No doubt, as he says, the most important criterion is the consensus between the impressions of the individual and the testimony of others; but even this, as he virtually admits, is not uniformly conclusive, for, given a multitude of men subjected to the same disturbing conditions of panic, a common illusion becomes not only possible but probable. The result of this inquiry into the grounds of certitude is that there is no absolute criterion of truth. At the same time we are able to reach a reasonable degree of certainty, which speculative doubt, essentially insincere, is wholly unable to disturb, and of which indeed this so-called doubt is a sufficient distinctive sign.

After dealing with the logical side of the dream, Prof. Delbœuf discusses its psychological origin, and more particularly its relation to memory. He here sets out with a full account of a curious dream of his own in which, among other products of past experience, habits of life, &c., there occurred a botanical name which upon waking appeared to be quite unfamiliar to him. It was many years after that the puzzle was explained by his finding the word in a herbarium that some friends of his had brought

from Switzerland two years before the dream. Just as the consideration of the illusory character of the dream led our author to the wide philosophical question of the criterion of knowledge, so the psychological analysis of his dream conducts him to the general problem of memory. The reproduction with perfect clearness of a name, the origin of which was wholly forgotten, suggests that no impression is entirely lost. The fact of a uniform conservation of psychical impressions naturally connects itself with the law of conservation of energy, and the author does not shrink from discussing the nature and grounds of this far-reaching principle. He thinks that the doctrine of the transformation of energy is commonly taken to mean that the actual order of cosmic events is capable of being repeated, and he takes some pains to disprove this supposition. The whole progress of things is towards an equilibrium in which no further change is possible. Every transformation of a force leads to a partial fixation of what was once free. The transformable gives place to the intransformable. The conservation by memory of the traces of past impressions is a special illustration of these vast all-embracing laws. The assimilation by the brain of external impressions may be regarded as a fixation of external forces. Just as the crust of the earth indicates by the succession of its strata all the changes in the history of our planet, so, according to Prof. Delbœuf, the organism is constituted by layers which represent the past actions of itself and its ancestors. He resolves these into a central nucleus consisting of the *ensemble* of hereditary elements, instincts, dispositions, &c., and a region or "depôt of formation," the result of its assimilative faculty, and consisting of an uninterrupted series of layers representing its daily acquisitions. This idea of a central nucleus and enveloping layers is, the author tells us, merely a metaphor for helping us to conceive the fact that the individual is composed of what he receives from his ancestors and of what he himself acquires. He pursues his biological speculations at some length, discussing the "mysterious and fundamental general functions" of nutrition and of generation and of their relations one to another. There is much here that is suggestive, but much also that seems too figurative to be of any considerable scientific value. It must be confessed further that in some cases, as, for example, when he seeks to give a new definition to 'centre' and 'periphery,' his meaning is not as clear as it might be; the reader feels that the author, in his bold and brilliant career over the theory of the origin and end of all things, fails to do justice to many of the topics which he touches. He does, no doubt, apologise for his digressions by telling us he is writing not a treatise but an essay; but even an essay ought perhaps to have the unity which only a well-defined subject can impart, and what one rather misses in Prof. Delbœuf's volume is an attempt to define the limits of his subject. When at last he does recur, at the close of this second section of his work, to the proper psychological problem of

memory, much that he says on the nature of recognition and the laws of association, though not altogether new, is characterised by freshness and force of expression. Among other interesting points worthy of notice is the sharp distinction he draws between the association of simultaneous and of successive impressions, a distinction which he seems to base on his peculiar theory of the way in which the nervous organism functions. Some of his statements however seem open to criticism. For example, he contends that in recognising an object, say a portrait, "you do not recall in any manner the traits or the circumstances identically similar," and he goes on to ask, "How could you do so since you have them before your eyes?" To this it seems enough to say that unless the mind distinguishes a past like impression from the present, identification and therefore recognition becomes impossible.

Returning finally, in one more section, to the state of dreaming, the author urges afresh that, saving perception, all the faculties of the mind remain "intact in their essence" though employed about objects which are imaginary and mobile. In illustration of this he gives us a number of interesting facts drawn from his own dreams and from those of others. Yet he hardly succeeds in establishing the proposition he lays down. That in sleep the will is enfeebled with respect both to muscular action and to the free direction of attention is, one would say, a familiar fact to every dreamer. At the same time one may cordially approve of the endeavour to trace the effects of fixed habits of mind in sleep, and to claim for the dreaming intelligence a higher degree of rationality than is commonly accorded to it. In carrying out this endeavour our author proves himself a painstaking collector of facts and a skilful psychological analyst. In following him here in a domain which he has made thoroughly his own, the reader may be tempted to regret that he did not confine himself to a discussion of dreams themselves, some aspects of which are touched all too lightly, while others, and these by no means unimportant ones, are not handled at all.

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JAMES SULLY.

*Les Problèmes de l'Esthétique Contemporaine.* Par M. GUYAU.  
Paris: F. Alcan. 1884. Pp. 257.

It is always pleasant to find oneself substantially in accord with what professes to regard itself as hostile criticism. M. Guyau's work is directed for the most part against the æsthetic views of the modern English school of physiological psychologists, represented in the concrete by the constantly recurring trio of names, "MM. Spencer, Grant Allen et James Sully". Speaking for the middle term at least of this unequally-yoked assemblage of evolutionary writers, I may candidly admit that M.



Guyau has very little indeed to say that does not meet more or less with his antagonist's cordial assent and acquiescence. His book consists in the main of criticisms directed against the view, originally propounded in the germ by Schiller, and put into more definite form by Mr. Herbert Spencer, which identifies the æsthetic sentiment with the exercise of the play-instinct on its passive side, in matters not immediately connected with life-serving function. In opposition to this idea, M. Guyau contends that the beautiful does not conflict with utility, desire, and the needs of the system. It has its roots, on the contrary, deep down in the very vitals of human life ; it springs from the real, the essential, the normal, the necessary. There is, says our critic, a certain æsthetic value in large respiration, in free action, in flowing motion, in food, in perfume, in the reproductive instinct, in all that constitutes the core and essence of organic life itself. More than that : art bases its existence ultimately on these deepest and truest foundations of our nature ; and because it does so, in spite of pessimistic ideas to the contrary, it will not decay before the face of modern science and the modern Americanised utilitarian sentiment. All this and much more like it is pleasantly urged in very clear and limpid French, with marked grace of expression and play of fancy, and with all its author's well-known charm of style and manner. But many parts of his book have literary rather than scientific or philosophical merit, and the writer often substitutes vague declamation or artistic prettinesses for the rigorous conciseness of psychological thought.

When M. Guyau goes deep enough to be scientific, it is not hard to see wherein lies the difference between himself and his English compeers. Our evolutionary and physiologically-minded thinkers, having to probe for the first time to the very base of the matter, have been busying themselves for the most part, and of necessity, with the beggarly elements of æsthetic feeling : they have had to deal rather with its simplest and earliest raw manifestations—its prime factors—than with the complex emotions roused in cultivated minds by highly-evolved works of art. Their French critic does but once more constructively fling in their faces the taunt long ago flung at Locke, of forgetting everything but children and savages. Only, he objects it with the utmost politeness and suavity of manner, rather by implication than by direct reference. On the whole, I am not inclined to quarrel with his contention that we have all left out of consideration many aspects of æsthetic sentiment. The truth is, all early work at any line of investigation must necessarily be very crude, vague and imperfect ; it must require endless modification and guarding of statements ; it must undergo perpetual revision, both to bring it into nearer harmony with ascertained fact, and to close the door against possible misapprehensions or distortions of meaning. Now for Mr. Spencer I cannot speak, further than to say that the treatment of Æsthetics in the *Principles of Psychology* is confined

to a single short, though highly suggestive, chapter, and that the incidental hints in the *Essays*, though more fully elaborated, belong to an early stage of Mr. Spencer's thinking, and deal with a few special points alone. Mr. Sully, too, I shall leave to defend or modify his æsthetic theories, as he likes, in person. But for my own early work—*Physiological Æsthetics*—which M. Guyau honours too greatly with much serious and generous criticism, I can frankly admit that it looks far too exclusively at the simpler sensuous elements of beauty only, lays too much stress on sight and hearing alone, and jumps too rapidly from these prime factors to the higher developments, without allowing nearly enough for the intermediate stages and the infinite interosculation of emotional, intellectual and associational disturbances. It is too rigid, too schematic and too youthful. Nobody can feel more intensely than I now do the immense complexity of the sense of beauty, and its profound dependence upon innumerable chords in all parts of our nutritive and sensitive nature. "Selon M. Spencer et son école," says M. Guyau, "l'idée du beau exclut: (1) ce qui est nécessaire à la vie; (2) ce qui est utile à la vie; (3) elle exclut même en général tout objet réel de désir et de possession pour se réduire au simple exercice, au simple jeu de notre activité." This, I think, hardly summarises aright the view in question. The necessary and the useful, we evolutionists believe, may all have their æsthetic side—do all possess an æsthetic side, in fact; but only in immediate contemplation of certain of their attributes other than their mere bare utility. When cognised as beautiful, they are not cognised as useful in the naked sense. M. Guyau himself admits that the poetry of a railway lies not so much in the permanent way, the rails and the sleepers, as in "the palpitating engines, snorting steam athwart the acres"; and I fancy at bottom the differences between himself and his English contemporaries are not quite as irreconcilable as he now imagines. Certainly when he says, "Considérer le sentiment esthétique indépendamment de l'instinct sexuel et de son évolution nous semble aussi superficiel que de considérer le sentiment moral à part des instincts sympathiques," he is uttering a truth with which, I believe, the English psychologists themselves are deeply penetrated. English æstheticians cannot be accused of neglecting the importance of sexual selection, nor of overlooking the rôle played by love in all poetry, and by ideal female beauty in all plastic and pictorial art. Only, the untrammelled treatment of that side of the subject is rendered far more difficult by circumstances in England than it is in France.

In short, the recognition of an intimate fundamental connexion between functional life at large and the idea of the beautiful, which M. Guyau believes to be his own special discovery, seems to me, on the contrary, an essential principle of the entire English evolutionary school.

The latter portion of M. Guyau's volume deals rather, in his

accustomed manner, with the practical outcome of recent æsthetic theories. In France, where the sterner and less poetical side of so-called "Materialism" and evolutionism has been too effusively and somewhat brutally dwelt upon, there seems to be a disposition on both sides to take it for granted that beauty and art have now played out their part in the world, and that utility and science—naked utility and harsh science—are to have things all their own way in the kingdoms of the future. Against this cruel and monstrous idea M. Guyau emphatically protests. Herein all English thinkers will probably agree with him. Fortunately for us, we see over here no necessary antagonism between science and poetry, between truth and beauty. On the contrary, some of us see even a close and necessary natural alliance. The sublimity of our modern cosmic conceptions must sooner or later affect our poetry and our art: imagination is none the less imagination because it is true rather than distorted. The last topic of M. Guyau's volume, "*L'Avenir et les Lois du Vers*," occupies a somewhat disproportionate space in his disquisition, as might naturally be expected from the author of *Vers d'un Philosophe*; it teems with apt illustrations and just criticism, but offers comparatively little of interest to a philosophical English reader. The pages swarm with the mysteries of French prosody; and though to those who (like the present critic) have been brought up in France, Victor Hugo and Charles Baudelaire are full of subtle music, yet to most Englishmen French poetry still clearly presents itself as a mere trackless jumble of utterly lawless and unrhymical syllables.

GRANT ALLEN.

*Erfahrung und Denken*: Kritische Grundlegung der Erkenntnistheorie. Von JOHANNES VOLKELT, Professor der Philosophie an der Universität zu Basel. Hamburg u. Leipzig: Voss, 1886. Pp. xvi., 556.

Prof. Volkelt's new work is at once a supplement to his previous treatment of the theory of knowledge, in reference to the Kantian philosophy (*Kant's Erkenntnistheorie*, 1879, noticed in *MIND*, v. 145), and an important contribution to the study of problems fundamental in Logic and in Metaphysics. *Erkenntnistheorie*, or theory of knowledge, is a term so much in vogue, and the distinctions supposed to be implied in it have been made to wear an aspect of so much significance, that an attempt at exhaustive treatment, even of its more general features, deserves cordial recognition and welcome. Any apology, such as Prof. Volkelt alludes to in his prefatory note, for over-elaborateness in statement, seems needless. The difficulties experienced are very largely dependent on the excessive ambiguity of the technical terms that must be employed, and a writer can hardly confer a greater benefit than by subjecting these to detailed analysis and making clear the

sense in which they are used by him. In laying the foundations of a theory of knowledge everything depends on the power of defining terms so as take account of the innumerable side-issues as well as main problems that have come to be connected with them. Here, as elsewhere in philosophy, the settlement of the significance of a term is the final result of prolonged analysis.

In the course of Prof. Volkelt's work, many questions of logical theory or of the philosophy of logic are opened up, and on all of them what the author has to say deserves and will repay study. But the work has a specific aim and one very definite problem, the various sides of which are in gradual succession opened up. It will probably convey the best idea of the question and of the solution the author has to offer, if in this notice as full an exposition as is possible in the limits be offered, following the order adopted in the book itself, but omitting what may be judged or what is allowed by the author to be of secondary importance.

The book falls into eight sections. The first, entitled "The Scientific Need for a Theory of Knowledge," formulates the question and gives certain historical notices that render its import more definite. The second, entitled, "Pure Experience as a Principle of Knowledge," and the third, "General Significance of Logical Necessity as a Principle of Knowledge" (or, as it might have been called, "Thought as Principle of Knowledge"), are relatively the most important, and contain in brief what is special to Prof. Volkelt's view of the whole question. Section iv., "On Knowledge as the Co-operation of Experience and Thought," states from another side what has been reached in the preceding sections. Sections v. and vi., "The Subjective Factors of Knowledge" and "The Notion (*Begriff*) in its Significance for Knowledge," are excellent contributions to general logic, if that term be allowed in its largest sense. Section vii., "Kinds and Sources of Uncertainty in Knowledge," is likewise logical in character, forming the needful introduction to methodology. The concluding section discusses the solution given in the light of various problems more or less connected with it.

The stress of the whole book lies evidently in the formulation of the problem, and accordingly it is to the first section that one turns with greatest interest. The distinction between the several sciences, special knowledges as one might call them, which for their part assume without further question that objective knowledge is somehow possible, and a theory of knowledge which can evidently start with no such assumption, is the introduction whereby Prof. Volkelt advances to the discussion of *Erkenntnistheorie* as a science without previous assumptions. The need of such a science he regards as sufficiently made out by reason of the well-grounded doubt that may be entertained regarding the very possibility of knowledge. Such doubt arises from the incontestable consideration

"that all the acts claiming to constitute objective knowledge are inseparably united to the individual consciousness of the knower, that they have real existence primarily and immediately nowhere save in the consciousness of the individual, and that they are perfectly incapable of extending beyond the consciousness of the individual and of grasping or entering into the field of the real that lies beyond". The meaning of this passage is perhaps sufficiently clear, despite its strongly metaphorical expression, though one may be allowed to entertain a doubt as to the possibility of altogether freeing oneself from the direct suggestions of the metaphors themselves. Knowing, says Prof. Volkelt in effect, is a process forming part of my individual mental life. It is therefore subjective, and by itself alone cannot substantiate any claim to yield objectively valid results. Whatsoever be the result of a critical investigation into knowledge, that investigation must start from the acknowledgment of the subjective and therefore inherently dubious character of every act of knowing. The cognitive individual may represent to himself an objective real as known, may represent to himself comparisons of his thought with the real as a test of their truth, may represent to himself other cognitive consciousnesses thinking or knowing the same as he does, but in every case he must acknowledge that his *representing* is a process in his own mind, and contains not in itself, in its own nature as fact, the warrant of its objective validity. It is legitimate to maintain, as a self-evident, ultimate principle, the proposition that knowing as an act is a process of mind; I am directly aware of the existence of such a process, and the assertion of its existence has the strength of self-evidence. But I am entitled to no more than the assertion of such existence as a fact. Even if these subjective processes be more than facts in the mental life, even if they indicate necessities that go beyond the sphere of individual consciousness, such surplusage of significance is primarily for us something subjective; it is certainty on our parts, and we have to ask how comes it that subjective certainty is taken as indicating objectivity of knowledge?

It is natural that, having so formulated the initial difficulty, Prof. Volkelt should find in Locke rather than in Kant the historical originator of *Erkenntnistheorie*, and in fact, the statement of the question carries one inevitably to the precritical philosophies, to Cartesianism, *e.g.*, to which Prof. Volkelt's method of starting the inquiry has many interesting points of resemblance. Perhaps one might go so far as to maintain, though the extreme generality of these questions allows wide scope for varied interpretations, that the question as formulated by Prof. Volkelt is not a problem of the Kantian philosophy at all.

Since objectivity implies on the one hand reference to existence lying beyond the limits of individual consciousness, and on the other hand validity for all consciousness, it is evident that nothing within the scope of consciousness can constitute objective know-

ledge. Every fact there is subjective in nature and individual. Absolute scepticism would thus be the necessary conclusion if there were not somehow given a kind of knowledge which, making no pretension to be objective, has the more valuable mark of absolute self-evidence. If there be such a knowledge, then on the basis of it something may be done for the theory of objective cognition.

As was remarked, there is much resemblance in all this to the familiar Cartesian procedure; and the answer offered strikes one immediately as little more than a modern setting of the *cogito ergo sum*, a setting which may be thought to bring to the front and exaggerate all that is unsatisfactory and dubious in the famous maxim.

There is, Prof. Volkelt thinks, one knowledge possessed by us, in regard to which we enjoy absolute certainty, and are not exposed to the troublesome doubts roused by the notion of objective cognition. "The slightest introspection shows me that I possess a knowledge (*ein Wissen*) of the processes of my own consciousness." This knowledge is absolutely self-evident and indubitable; nay more, it carries with it the very principle of certainty. The fact of knowing my own mental states is in itself the evidence for the knowledge; no further evidence is needed or is possible.

It is to the credit of the book that, just at this point, which looks exquisitely simple and is really very complex, an attempt is made to explain in detail what is signified by the "knowledge" of one's own mental states. "In the first place there must be some processes in my consciousness; secondly, my attention must have been directed upon them; and thirdly, I must have been able to discriminate, fix and observe the processes which fall within the range of attention. Merely to have conscious processes is not identical with knowledge of them. . . . Nay, even the attentive treatment of contents of consciousness is not necessarily an absolutely certain knowledge; it is further needful that I should be able to note their differences and limits"; in brief, to *observe* them. Apparently too, we cannot allow ourselves to feel sure that we do know any mental state, until we are able to reproduce it with consciousness of its identity. Finally, Prof. Volkelt extends the range of subjective self-evidence, and includes within it not only the immediately observed facts of consciousness, but all the contents of memory.

I must admit that, so far as I can understand the drift of this portion of the work, I entirely differ from the view apparently involved. It appears to me doubtful, even after Prof. Volkelt's careful statements, what exactly is meant by this knowledge and its certainty, and still more doubtful its connexion with the general problem of the work. Knowledge of inward states is here a process with its own contents; the mental states as occurring hold to these contents the relation which the Cartesians described by the terms *esse formaliter*. I do not gather that Prof. Volkelt

identifies the "formal" and "objective" being of mental processes; rather he appears to say that the difference is without any consequences as regards the principle of subjective certainty. To me the difference appears full of significance. So far as "knowing" is concerned, that—and not the difference designated by Prof. Volkelt as "trans-subjective" and "intra-subjective"—seems the most important. In observation of the inner life, the contents of the thoughts whereby we determine the nature of the observed are neither in *fact* nor in *meaning* necessarily identical with the observed. Nothing is gained, as regards accuracy of knowledge, by the *intra-subjective* character of both observed and observation. I should regret to misrepresent Prof. Volkelt's meaning, but unless I have altogether misunderstood what is so patiently worked out on pp. 56-58, I can only conclude that he is identifying consciousness in its vaguest sense with scientific knowledge of the facts of consciousness. If to know the processes of consciousness mean to be able to determine accurately their characteristics and differences, I should be inclined to say that we can hardly claim any such knowledge. What we do possess is painfully and laboriously attained, and wants every mark of immediacy.

I am in the same position of doubt as to understanding the certainty, the self-evidence, which is the special attribute of this kind of knowledge. Prof. Volkelt's words are: "I possess an absolutely self-evidencing knowledge of my own conscious processes". "This proposition is not certain for me as a conclusion drawn from a number of experiences, but it is a fact, certain for me in exactly the same self-evidencing fashion as the assertion I now feel hungry or warm. With any content of consciousness I am likewise aware of this (*werde Ich dessen inne*) that there is given an absolutely self-evidencing knowledge of what is taking place in my consciousness". Apparently then this proposition of which we are immediately certain accompanies consciousness, and is therefore distinguishable from it. If so, then, if the content of the proposition be the fact that there is absolutely self-evidencing knowledge of inner states, as I altogether doubt the fact, I must doubt the proposition also. I should willingly go further and maintain that nothing is gained so far as knowledge and its certainty are concerned by the distinction between trans- and intra-subjective. I can be, in and through the process of knowing, no more certain of what is *in my* consciousness, if we allow for the moment that any accurate meaning can be put on so metaphorical an expression, than of what is beyond my consciousness. That knowing is a process of mind, and that the known is in the one case likewise a fact of mind, seems to me to give no additional certainty to the resulting cognition. I should have thought that some reference to the difficulty here arising would have been noted when past facts of consciousness were included among the self-evidencing and certain.



Prof. Volkelt proceeds rapidly from this point to a consideration of pure Experience as principle of cognition. Pure, mere experience is simply such knowledge as the subject directly has of his own subjective processes. Anything else shows itself on the slightest analysis to contain trans-subjective reference or trans-subjective elements. States of mind known by the subject as his make up pure experience; pure experience consists wholly in the successive and co-existent particulars of the individual's consciousness. There fall within it no propositions of universal validity; it manifests to us a discontinuous and disconnected multiplicity, with no common feature other than the more or less vague feeling that each state belongs to my consciousness, and so to one and the same consciousness (p. 87). Not that an Ego is given as a fact of experience; neither Ego nor Non-ego is a state of consciousness. Hume's excellent account of experience represents as a whole most accurately the point of view of mere, pure experience.

Prof. Volkelt has some interesting remarks, in this connexion, on Positivism and subjective Idealism as partial exponents of the point of view discussed. He rightly insists that in both cases elements are introduced which are not legitimate implications of the principle itself.

The principle of pure experience, then, warrants no objective knowledge, and the survey of it convinces us that, if there be objective knowledge at all, that, so far as its certainty is concerned, must be for us in the form of beliefs. There cannot be in its regard the absolute self-evidencing character, for, *ex hypothesi*, that which it evidences is not itself, but something trans-subjective. The knowledge remains *within* consciousness, and as claiming to disclose the trans-subjective has a certain mystical character (p. 136-7). We cannot *a priori* determine whether there are principles of objective knowledge in our consciousness. Their existence is only disclosed in a survey of what is given in consciousness. Here again I call attention, in passing, to the interesting analogy with the Cartesian procedure.

Such survey discloses readily to us, as possessing marked peculiarities, these conjunctions of presentations and representations which are accompanied by the thought of Necessity. In them we appear to be contemplating the nature of the facts indicated, not the subjective mode of existence of the presentations themselves. In so far as the necessity of conjunction is rested on the nature of the facts and does not flow from any other motive, moral, æsthetic, or the like, it may be called logical. It is the necessity of thought, exhibited only where thought is operative, that is, in conjunctions, not in the isolated elements conjoined. Necessity of conjunction, however much more it may involve as consequence of the character assigned to the conjoined, yields readily on analysis the two all-important characteristics of objectivity—universality and reference to existence beyond the individual act of

conjoining. The trans-subjective is therefore involved in every judgment, for judgment is the comprehensive title for all such conjoinings: directly, in so far as the reference to existence is concerned; indirectly, in so far as the universality implies a multiplicity of consciousnesses with common laws of conjoining. The principle of logical necessity, or of the necessity of thought disclosed by survey of the facts of consciousness, is then the general expression for what is implied in trans-subjective knowledge.

The sections (pp. 39-181) in which the general characteristics of Thought are discussed are to be cordially recommended; they form an excellent contribution to the logic of the judgment, and contain much that would repay minuter discussion. Omitting them, I proceed to note how Prof. Volkelt deals with the principle of logical necessity from the point of view previously stated as regards the sphere of absolutely certain knowledge. So far as I understand his view, it may be expressed briefly thus: Whatever be the nature of the trans-subjective reference involved in thought, whatever explanation we may find or offer regarding its probability, the *certainly* which accompanies it has only subjective ground, rests only on the invincible belief that accompanies the activity of thinking. "Thought rests finally on an inner experience of an intuitive kind" (p. 183), and this "is experience with the essential addition that the experience at the same time makes me aware of its validity for what is not experienced" (p. 189), *i.e.*, for the trans-subjective. Thinking then does not so much immediately warrant the trans-subjective validity of its contents as insist that, if they have been correctly attained, they must have such validity. We proceed in thought, so to speak, with an ideal in view, the essential nature of which is presented by thought itself, but the rounded completeness of attainment is not necessarily involved. Moreover, thought is purely formal: it can neither create the trans-subjective to which it points, nor fashion for itself its own subjective ideal content. That an activity so conditioned should yet claim to disclose the trans-subjective is intelligible only if we assume, not empty identity between thought and the trans-subjective world, but a community in root and laws (201, cp. 502). Prof. Volkelt expressly declines, as not forming part of the epistemological problem, the inquiries into the metaphysical nature of this relation, or into the psychological fashion in which thought comes about in the inner life.

Logical necessity, then, is the truly fruitful principle of objective cognition, and Prof. Volkelt proceeds to discuss how experience, in the sense previously defined, and thought co-operate together in fashioning the contents of the objective knowledge we deem ourselves to possess. His answer, briefly put, is in substance a modification of the Kantian view, but expressed with more specific reference to difficulties that have been raised since Kant's time. Thought gives to the contents of experience their objective reference, adds to them factors not supplied by experi-

ence itself, but it has neither originating force nor corrective skill. Experience is needed in order to set going the activity of thought, to supply materials for its operations, and to furnish means of testing and examining the results of the exercise of thought. Yet it is to be noted, as an essential correction to the Kantian view, that thought has not as its result the mere fashioning of experience into order and form it does not itself possess, but points constantly to what is never matter of experience. For in thought we may well distinguish from one another the functions which express its formal nature and the categories or conceptions of trans-subjective content which its exercise involves. The latter are often, perhaps for the most part, unconscious elements in our thinking.

It is evident that, apart from details as to the processes involved in thinking, the general position of thought in reference to the trans-subjective implied in it, may be characterised by the term subjective, and Prof. Volkelt, adopting on the whole the view excellently stated by Lotze (*Logic*, 536), gives a striking exposition of the Notion as the mode in which there is summed up the results of thought respecting the nature of its object.

It only remains to note, in this brief and imperfect account of a work unusually full of matters open to discussion, that Prof. Volkelt finds no other source of objective knowledge deserving to be placed alongside of the principle of logical necessity. Moral necessity, which in Kant's system played so great a part, is indeed allowed by him to have a quasi-objective reference, but "in essence it remains subjective". It does not give us, like logical necessity, the knowledge of causal order and regular subordination to law; it extends in no way our conception of the real order of the trans-subjective world. In a similar fashion are rejected the principles, often appealed to in the history of thought, of intuitive perception and intuitive self-apprehension.

It has been possible to comment only on that portion of Prof. Volkelt's work in which the central difficulty of theory of knowledge as conceived by him is explicitly stated, and what has been suggested by no means fulfils the requirements of adequate criticism on what one would describe as the Cartesian position. The essential characteristic of that position is the abstract consideration of consciousness as having within its own narrow limits the only certain knowledge attainable, and the natural consequence of the position is exactly that "flight" to belief in the trans-subjective validity of knowledge of which Prof. Volkelt's work is for the most part an elaborate defence. I believe it to be a real error in philosophical method to make the initial steps in a theory of knowledge from the Cartesian position, and am of opinion that the whole advance achieved by Kant is lost if we return, in dealing with the epistemological problem, to the identification of knowing as a fact in the inner life of a subject with knowledge as the representation of a content known. It is only when we make

such an identification that we find ourselves driven to such crude imaginations of the process of knowing as seem to have weighed upon Prof. Volkelt. If knowing be conceived only as a fact or series of facts occurring, then truly we may puzzle ourselves by trying to depict it as involving "ein Hinausgreifen über das Bewusstsein, eine Berührung mit dem Trans-subjektiven," and, after deciding that its *contact* with the trans-subjective cannot be mechanical (!), venture to say that it must be "so to speak, dynamical," and finally wind up by declaring it altogether *mystical* (see pp. 136-7). In all this there seems to me deep-rooted confusion. I do not say that the difficulties alluded to are all of them unreal, but only that their character is altogether rendered inconceivable by the point of view from which they are described. I am unable to see the connexion, which to Prof. Volkelt appears evident, between the two main ideas of his work, the principle of experience as he calls it, and the principle of necessity of thought; or, at least, I fail to see how the two as here stated form parts of one consistent doctrine. But the whole question of the Cartesian method in the explanation of knowledge deserves and will repay a more elaborate discussion, to which I hope to return.

ROBERT ADAMSON.

## VII.—NEW BOOKS.

[*These Notes (by various hands) do not exclude Critical Notices later on.*]

*Our Temperaments: Their Study and their Teaching. A Popular Outline.*  
By ALEXANDER STEWART, F.R.C.S. Edin. With Illustrations.  
London: Crosby, Lockwood & Co., 1887. Pp. xxvi., 392.

The objects set before himself by the author of this work are first to bring into clear light the traditional medical doctrine of the four temperaments, and in the next place to make it more precise than it had become either in the hands of the Greek physicians or of those moderns (the Frenchman Richerand and the Spaniard Cortès) from whom other authors have chiefly drawn, when they have not drawn directly from the Greeks; the result of the whole being that it is possible to infer at once a large number of associated mental and physical qualities from mere observation of certain definite characters of colour and form. In both aims no small success has been attained. Whatever may be the positive value of the author's results—and he does not make any exaggerated claims for them—his researches and observations will henceforth hold an important place among contributions towards the scientific classification of human types. He himself points out the limitations of the doctrine. It applies only to civilised men; for no differences depending on the predominance of different systems of organs seem to be met with among savages. The distinctions that were drawn in ancient times, from Hippocrates onwards, cannot be accepted as true in detail except of the Greeks. Those of Richerand, the principal authority within the last half century, besides being often vague, are applicable only to French types. Again, the author's own distinctions "are taken from the people of our own country, and therefore may not apply to those of other countries, the physical characteristics and the influences that modify the mental ones being more or less different". The great defect of the ancient classification was, of course, the omission of the nervous temperament. In compensation, the bilious temperament was duplicated into the "choleric" and the "melancholic"; the last partly supplying the place of the "nervous temperament" of the moderns. The most important addition made by the author to the general description of the temperaments is the assignment to them of definite form-characteristics; but the advance he has made in precision cannot be measured by single additions, as will be seen when the tables giving his definitive results (pp. 77-80) are compared with the descriptions he quotes from the older authors. One column of each of these tables gives the "physical," another the "mental" characteristics of the four "pure temperaments". The last, in the author's view, do not form part of their determining characteristics; the temperament itself being a matter of direct physical observation, and thus known independently of all associated mental qualities. For this reason, indeed, he would restrict the word "temperament," in literature and conversation, to physical distinctions. Only the four physical temperaments and their compounds are known by definite marks; and these are recognisable, by the marks assigned, without risk of mistake. In the tables referred to, each temperament is distinguished by three characteristics of colour (as to 'hair,' 'eyes' and 'complexion') and four of form (as to 'face,' 'nose,' 'neck' and 'build'). The nervous temperament differs from the rest in all characteristics, both of colour and form; while the

sanguine, bilious and lymphatic, alike in all characteristics of form, differ from each other as well as from the nervous temperament in all characteristics of colour. The description of the "pure temperaments" is followed by descriptions of selected "compound," "balanced" and "semi-balanced" temperaments. Some suggestions are added, in the later chapters of part i., on modification of the temperaments by manner of life, and on their relations to climate and food, to disease and its inheritance, &c. In part ii. ("The Teaching of the Temperaments," pp. 267-392), hints are given for applying the knowledge of them to education, to choice of a profession, and to the promotion of health. The loose use of the word "temperament" is criticised in an acute and interesting way; and the biographical value of real "temperament portraiture" is illustrated both negatively and positively. As an aid to the classification of faces, a selection is given from *Lodge's Historical Portraits*; the selected faces being arranged according to type. Lastly, the results are tabulated of "observation of the forms of a hundred faces".

*The Functions of the Brain.* By DAVID FERRIER, M.D., LL.D., F.R.S., &c. Second Edition, rewritten and enlarged. With numerous Illustrations. London: Smith, Elder & Co., 1886. Pp. xxiii., 498.

Dr. Ferrier's well-known work, reviewed in *MIND* (ii. 92) at some length on its first appearance in 1876, now re-appears after ten years in greatly altered and extended form. Plan and principles of treatment remain in general what they were, but, while the primary object still is to give a detailed account of the author's own celebrated investigations, the book can now much more than previously claim to present "a systematic exposition of the functions of the brain and central nervous system in accordance with . . . the best established facts of recent physiological and pathological research". Enlarged by more than half its former size, it has also in the parts reproduced been so carefully revised as to be practically a new book; the doubt only being suggested, by some of the patches worked-in from the first edition, whether the author would not have done better—it could not have given him more trouble—to "rewrite" absolutely *de novo*. The structural revolution is nowhere more marked than in c. i., where the cerebro-spinal system is now very exhaustively described in 50 pp., taking the place of 15 pp. of mere "sketch" before; c. ii. also now gives adequate account of the spinal cord, in its double function of conductor and centre, at a length of 40 pp., where 7 pp. on the single reflex function were formerly thought sufficient. Several of the following chapters, dealing with the main divisions of the system upwards, are recast and all are revised; but the next radical change is in (or from) the old c. ix., "The Hemispheres physiologically considered"; its two sections of "Sensory Centres" and "Motor Centres" being now set out as two chapters (ix., x.), at twice the previous length. More new work has, in the last ten years, been done upon the "sensory centres" than in any other department of cerebral research, and the result is particularly apparent in the elaborate account (35 instead of 7 pp.) that has now to be given of the "visual centre"—so much more complex in its connexions as well as wide-spreading in superficial area than was at first supposed. As to the "motor centres," while here and also in other parts of the new edition the author is more than ever forward to argue against the view of "muscular sense" that connects it (physiologically) with the outgoing current, he still does not appear sufficiently to consider what support (as hinted before in *MIND* and as has also been urged by Dr. Bastian) that view gets from his own conception of such centres—support that is not nullified by withdrawal of particular expressions or sentences from the

later chapter (now xii.) where he sets out his general psychological interpretation of cerebral processes. The chapter just mentioned gives some little expansion to his earlier suggestion connecting Attention with the frontal lobes, but does not otherwise advance towards determining the physiological conditions of the higher mental functions, and in general is not much altered from its previous form. On the other hand, the foregoing chapter (now xi.) on the "Basal Ganglia" is wholly recast; with which fact may be noted the suppression of the old chapter xii. that gave, with formidable nomenclature, a "diagrammatic summary" of his whole view of the relations, internal and external, of the different grades of centres. In that summary, with the diagram drawn to illustrate it, the most questionable feature was the unhesitating assumption of a direct connexion between the optic thalami and the corpora striata, as if these constituted between them one relatively distinct sensori-motor mechanism. No sufficient anatomical or physiological ground was adduced for the connexion in the first edition, and still less is any now supplied in the new chapter, which shows with great care and candour how little is yet really made out concerning these great ganglionic masses. It might be supposed then that the author has withdrawn his old summary chapter, if for no other reason, in order not to prejudge the question of their relations; but he surprises us by, after all, at the end of c. xi. (p. 422), putting it forward as at least "probable" that "they constitute together a sensori-motor mechanism, subservient to the manifestation of all those forms of activity which do not imply conscious discrimination or true volition". Here it would seem the doctrine of the first edition might with advantage have been left wholly aside. The remarks now made are intended merely to give the barest notion of the changes in a book of established importance. There will be opportunity later on to examine with the necessary care some of Dr. Ferrier's positions, which he has now spared no pains to render as strong as, upon new investigation and farther reflexion, he can make them. Nobody that set store by the first edition can afford henceforth not to have the second rather at hand for study and reference.

*Types of Ethical Theory.* By JAMES MARTINEAU, D.D., LL.D., late Principal of Manchester New College, London. Second Edition, revised. 2 Vols. ("Clarendon Press Series.") Oxford: Clarendon Press, 1886. Pp. xxxii., 512; viii., 596.

Dr. Martineau's work, of which the main thesis is subjected in the present number to a more special handling than it formerly received, here already re-appears, in two volumes of a reduced and very handy size. In the way of revision, "a few passages are modified or annotated in order to guard against misconceptions occasioned by their inexact form". Otherwise, the author contents himself, in a second preface (pp. xix.-xxx.), with defending his designation of Plato's theory as "unpsychological," and now extending it more expressly than he had done before to Aristotle's theory also, which has no place in the scheme of the work; with a short justification of his antithesis of "idio-" and "hetero-psychological"; with a promise that the question of free-will is to be discussed in the complementary work to follow on Religion; and with some farther remarks on the necessary implication of "personal relation" in the notion of "moral authority". In an Appendix (ii. 569-75) are given four letters that passed between the author and Mr. H. Spencer on the interpretation put, in the first edition, on the latter's conception of evolution.

*Studies in Ancient History*, comprising a Reprint of *Primitive Marriage*, &c. By the late JOHN FERGUSON MCLENNAN. A New Edition. London: Macmillan & Co., 1886. Pp. xxxi., 387.



Though these *Studies*, made up of the famous *Primitive Marriage* and five shorter essays on kindred topics, lie outside the strict province of MIND, they touch it very nearly and may be mentioned again as they were when first collected in 1876 (Vol. ii. 132). They now appear with a number of additional notes, supplied by the lamented author's brother, Mr. D. McLennan, at first hand or (in the case of the now considerably increased Appendix, pp. 165-91, to *Primitive Marriage*) on the basis of collections of supporting evidence made by the author himself. A second volume is promised "containing other writings of the author—writings for the most part hitherto unpublished, and prepared for a work which was left unfinished—from which it will be possible to gather, in a considerable measure at least, how far the author's views had grown or been developed, how far they had changed or been added to subsequently to the appearance of *Primitive Marriage*" (first in 1865).

*The Introduction to Hegel's Philosophy of Fine Art.* Translated from the German, with Notes and Prefatory Essay. By BERNARD BOSANQUET, M.A., late Fellow and Tutor of University College, Oxford. London : Kegan Paul, Trench & Co., 1886. Pp. xxxiii., 175.

This is a complete translation of the Introduction to Hegel's *Ästhetik*. Mr. Hastie's rendering, noticed in MIND, xi. 437, is, it seems, in the latter part, an analysis. The translator has "hoped that the present volume may be of interest to many who, without being students of philosophy, are intelligent lovers of art," and has therefore done his best "to interpret philosophical expressions, instead of merely furnishing their technical equivalents". The prefatory essay (pp. xiii.-xxxiii.) "On the True Conception of Another World" shows how "the 'things not seen' of Plato or of Hegel are not a double or a projection of the existing world"; the distinction of the ideal from the real world in the Hegelian philosophy at least being always a distinction "within the world which we know, and not between the world we know and another which we do not know". To illustrate this, M. Bosanquet explains the Hegelian notions of Infinity, of Freedom and of an immanent Deity.

*The Life of Words as the Symbols of Ideas.* By ARSÈNE DARMESTETER, Professor of the History of the French Language and of Old French Literature, at the Sorbonne. London : Kegan Paul, Trench & Co., 1886. Pp. 173.

These interesting Lectures—which were delivered in London to a limited audience and appear in translation before being published in French—although influenced throughout by the author's psychological aim, are for the most part concerned with (French) philology rather than with psychology directly. There is one chapter (pt. i., ch. 3, pp. 83-105) where the author deals suggestively with linguistic study as an instrument of psychological research, summing up his conclusion in the following sentence:—"Of the different natural manifestations wherein the character of a people reflects itself, their religion, literature, art and institutions, language is the most direct and most immediate, because it does not in the same degree as the others submit to the powerful and personal action of individual men of genius, and because, on the other hand, it is the very expression of the people's turn of mind, it is the very mould of their thought" (p. 105).

*Life of Antonio Rosmini Serbati, Founder of the Institute of Charity.* Edited by WILLIAM LOCKHART, Graduate of Oxford, Exeter Coll., Procurator of the Order in Rome, Rector of St. Ethelreda's, London. 2 Vols. London : Kegan Paul, Trench & Co., 1886. Pp. xxxiii., 360 ; xi., 352.

The first volume of this work appears to have been published by itself some time ago and, a second edition being called for, is now issued in smaller form along with the second volume. "The compiler of the first volume" (here unnamed, but originally, we believe, given as G. Stuart Mac-Walter) having meanwhile died, Father Lockhart assumes editorial responsibility for the whole work as now completed. It has come to hand too late to be more than simply noted here—with the single remark added that, while the 'Life,' drawn from the best sources, is evidently full of interest, it is followed in vol. ii., among other chapters of general characterisation, by five (pp. 216-303) giving account and estimate of Rosmini's philosophy.

*Phantasms of the Living.* By EDMUND GURNEY, M.A., late Fellow of Trinity College, Cambridge, FREDERIC W. H. MYERS, late Fellow of Trinity College, Cambridge, and FRANK PODMORE, M.A. 2 Vols. London: Rooms of the Society for Psychical Research, also Trübner & Co., 1886. Pp. lxxxiii., 573; xxvii., 733.

This long-expected work, the massive result of an inquiry conducted with astonishing vigour and pertinacity, has already become so well known in its main features through the daily and weekly press, that, for the present, it may suffice here to simply note its appearance. For all but an "Introduction" of xxxv. pp. and in vol. ii. a "Note on a suggested mode of Psychical Interaction" (40 pp.), due to Mr. Myers, Mr. Gurney is solely responsible, though he has been helped throughout in "the collection, examination and appraisal of evidence" by both of his associates, and has also obligations to acknowledge to a number of other persons. The volumes are mainly taken up with the record and discussion of "cases," but, besides the "Introduction," several chapters, especially c. iv. "General Criticism of the Evidence for Spontaneous Telepathy" (i. 114-85), are occupied with questions of general principle. These, it need hardly be said, are marked by no ordinary ability, while they display the fullest sense of the serious scientific issues involved in the inquiry.

*Hume.* By WILLIAM KNIGHT, LL.D., Professor of Moral Philosophy, University of St. Andrews. ("Philosophical Classics for English Readers.") Edinburgh and London: William Blackwood & Sons, 1886. Pp. x., 239.

The editor of the "Philosophical Classics" here makes his own contribution to the series, of which, as planned, only two volumes—*Bacon* and *Spinoza*—are still outstanding. He has given a much larger proportion of his volume (100 pp.) to the *Life* than Prof. Huxley did in like case, yet has managed, without going much beyond his predecessor's limits, to give fuller account also of the Philosophy, in respect of its origin, import and consequences. In the *Life*, which is very interestingly written, the author has been able to add several points of importance, from new sources, to the story as previously made out by the careful research of Hill Burton. The account of the Philosophy is rightly based on the *Treatise of Human Nature*, rather than the later works. The volume would have appeared earlier but that the author has been engaged in collecting materials for a larger work on the philosophy of Hume, to follow the present more popular sketch.

*Leading and Important English Words: Explained and Exemplified. An Aid to Teaching.* By WILLIAM L. DAVIDSON, M.A., Author of the *Logic of Definition*. London: Longmans, Green & Co., 1886. Pp. vi., 214.

This little work, intended for schools and sure to find an entrance where the master is intelligent enough, is a most useful yet simple piece of applied logic,—in the way of “synonymous discrimination”. About a hundred and fifty important words are taken (in alphabetical order) and, in the light of certain clear principles of logical definition set out in a short Introduction (18 pp.), all the words of more or less closely related import are marked off in short and pithy phrase, followed by a copious collection of illustrative examples, chosen or made. The author in no way exaggerates the importance of such discipline for the youthful intellect.

*S. Austin and his place in the History of Christian Thought.* (The Hulsean Lectures, 1885.) By W. CUNNINGHAM, B.D., Chaplain and Birkbeck Lecturer, Trinity College, Cambridge. London: C. J. Clay & Sons, 1886. Pp. xiii., 283.

In these “Hulsean Lectures,” partly theological and partly philosophical, the author aims above all at bringing out S. Augustine’s essential difference from Calvin, his theological and philosophical moderation generally, and his special influence at all periods on the English Church. It is for this reason that he has used the older English form of the name; finding in it a difference of “theological associations”. After an Introduction (pp. 1-18), the Lectures are divided as follows:—(i.) “Truth and the Possibility of attaining it”; (ii.) “The Origin of Evil and the Punishment of Sin” (The Manichean Controversy); (iii.) “Human Freedom and the Divine Will” (The Pelagian Controversy); (iv.) “The Kingdom of God and the Means of Grace” (Philosophy of History; the Donatist Controversy). There is an Appendix (pp. 137-278) containing “brief discussions of several important points which could not be conveniently treated within the limits of the lectures”. After “Excursus G” of the Appendix comes a reprint of a tract on “The Doctrine of S. Austin concerning the Christian Sacrifice,” by “a divine of the University of Cambridge, who is identified by Lethbury with a non-juring clergyman named George Smith” (pp. 199-276). The Lectures are throughout copiously illustrated with passages from the father’s works printed at length in the footnotes. In dealing with S. Augustine as a philosopher, the author first contends that he “states with extraordinary clearness the same proof of the possibility of indubitable certainty, which Descartes was to bring forth once again, when more than a thousand years had passed away” (p. 25), while his manner of applying it is superior even to Descartes’ (pp. 39-41). He also “seems to have anticipated Kant in proclaiming the true Freedom of the Will” (p. 105). Again, as regards Philosophy of History “we may turn from the grandest modern account of the evolution of human progress—turn from Hegel himself—to S. Austin and feel that the historical system of the ancient father is more perfect and complete” (p. 115). The author further contends, in passages of the Lectures and also in “Excursus A,” that S. Augustine (besides being a psychological observer) devoted much attention to the observation of nature. Towards the non-experimental physical science of his day “his whole attitude is not unlike that in which a modern might speak of the methods of fourth century physicists” (p. 138). Of the rest of the Appendix, “Excursus B” (“S. Austin’s Influence in the Middle Ages”) and “Excursus F” (“The Freedom of the Will”) are the most expressly philosophical.

*The Development of Taste and other Studies in Aesthetics.* By W. PROUDFOOT BEGG. Glasgow: James Maclehose & Sons, 1887. Pp. xx., 392.

The author’s purpose in this book is not to deal with “the progress of

taste, in the widest sense of it, from the beginning of life on our globe to the present moment," but mainly "to note the widening and growing intensity of a love for the beauty and grandeur of the outward material world as distinguished from man and his works"; and having done this, to consider "various other questions with relation to beauty which should be of interest to all, but especially to inquirers in philosophy and theology". In chapters i.-vi. he traces the development of the sense of beauty in external nature from its earliest manifestations; pointing out the evidences that the Greeks and Romans were not so much inferior to the moderns in love of nature and sense of the picturesque as is often supposed, but at the same time contending that the love of nature has been greatly developed through the influence of Christianity, and that the feeling of security given by modern civilisation has developed the sense of the picturesque. In cc. vii.-xiv. "the standard of taste," the association-theories of Alison and Jeffrey and of more modern writers, the "reality," the distinctive characters and the "universality" of beauty are discussed. Of the "association-theory" the writer says—"It has done well in arguing for a mental origin for beauty, and in insisting, by implication at least, that there is nothing beautiful apart from mind or spirit. For in that it is at one with all high idealistic speculations from Plato onwards, and with the old belief in which we have all been brought up that the universe is the work and creation of God" (p. 193-4). But beauty "is not a creature simply of association". "It is objective as well as subjective; real as well as ideal; a quality of things material as well as of things mental" (p. 248). Chapter xiv. is intended to lead to the conclusion that "all is supremely beautiful". There is an "apparent contradiction between such a conclusion and the view that many things are ugly"; but the contradiction is "only apparent". The ugly is "necessary in reality as in thought for the perception of the beautiful". This theory is "essentially optimistic"; postulating that, as Hegel says, "the real is the rational". "The Hegelian philosophy," however, "is wide enough to embrace the truth in any rational pessimistic theory that may be formed. In fact, it has embraced it from the first; for it is an 'optimism on the basis of pessimism,' and the two terms, like all other opposites, are held by it in reconciliation" (p. 355). In the last chapter (xv.) the author discusses the theory of colour, arriving at the conclusion that colour, like beauty, is not merely subjective, but is a real "quality in things around us".

*Contributions to the Science of Education.* By WILLIAM H. PAYNE, A.M.,  
Professor of the Science and Art of Teaching in the University of  
Michigan, &c. London: Blackie & Son. Pp. 358.

The note of these *Contributions to the Science of Education* is insistence on the scientific character of the "art of teaching" that already exists, and on the importance of the history of educational theory for guidance in the present. The author holds with Prof. Bain, that if there is a science of mind there must be an "applied science of teaching" dependent on it as medicine is dependent on the sciences of life; and he contends that actually "there is a larger body of valid scientific truth within the reach of the teacher than within the reach of the physician". Teachers, then, ought to receive instruction in this body of knowledge: and instruction ought to be given first of all in the University; for the character of the higher education determines the character of all the rest. As with the teacher, so with the learner, knowing should precede doing. The attempt to make the education of the individual child a repetition of the education of the race is a mistaken one. Each generation has the accumulated experience of its predecessors; and it does best in giving the new generation the advantage of

traditional knowledge, without any attempt to make it acquire knowledge by a process of rediscovery, by "the method of Nature," as recommended by Mr. Spencer and by Rousseau. To "the creed of the 'New Education,'" *We learn to do by doing*, the author opposes "the apophthegm of Bias," *Know and then do*. "First the head and then the hand; finally the hand inspired and guided by the head:" this is the principle of all professional and technical education, of "all rational practice". Again, the educational procedure indicated by psychology is not synthesis throughout but decomposition of aggregates into elements first, and then afterwards, in dependence on this, synthesis of elements. The teaching of geography, accordingly, should begin with the globe, and not with the topography of the district in which the child lives. The most important problem for the teacher is to determine what Prof. Bain calls "education values". Knowledge may be valuable (1) for its practical use, which may be either "direct" or "indirect"; (2) for the mental power it gives, for its disciplinary effect, which may be either "specific" ("intensive") on a part of the mind, as with mathematics, or "tonic" ("extensive") on the whole mind, as with history and literature; (3) as "culture," that is, "for the mental satisfaction coming from the conscious possession of it". The book is especially worthy of attention for its acute criticisms of Mr. Spencer, and of those who take the more distinctively "modern" views of education. The author often returns, for example, to the question as to the relative value of "first hand" and "second hand" knowledge, "knowledge of things" and "knowledge of books"; and finds that in many cases, even when the former is available, the latter is of more value. Classical education, he believes, can be maintained, if it is no longer made to exclude other studies, and if literature is regarded as the end, grammar chiefly as the means.

*The Re-organisation of Philosophy.* An Address delivered before the Aristotelian Society, Nov. 8, 1886 (being the annual Presidential Address for the eighth Session of the Society). By SHADWORTH H. HODGSON, Hon. LL.D. Edin., Hon. Fellow of C. C. C. Oxford, President. London: Williams & Norgate, 1886. Pp. 60.

In the present Aristotelian Address the most prominent topics are the relation of *Erkenntnisstheorie* and of psychology to the four rubrics of philosophy distinguished in the last Address (see *MIND*, xi. 123). The conclusions arrived at depend on the relation that is found to exist between "agency" in science, physical and psychological, which belongs to the rubric of "Real Conditioning," and "the moment of reflective perception," which is the basis of the properly philosophical rubrics of "Distinction of Aspects" and "Analysis of Elements". The error in the *Erkenntnisstheorie* of the Germans has been to assume Subject and Object as known previous to philosophical reflection, and then to identify the Subject, assumed to be a real agency like those of science and ordinary life, with "the one moment of reflective perception" or of properly philosophical experience. This moment is "one moment" not because it is numerically one, but because there is "identity in kind of the moments of distinct consciousness"; and there is no reason to suppose an "identical Self" corresponding to it as its "real condition". From this it follows that for the psychologist as for the philosopher there can be no "Self other than the real organism which is the complex of real conditions of the consciousness"; Matter being the only "real agency" that science can recognise. What positions it is possible to take up as to the ultimate nature of matter and its origin, and as to the origin of consciousness, the author briefly indicates; reserving his own solution, so far as he conceives a solution to be possible, for another occasion, when the fourth rubric or Constructive Branch of

Philosophy shall be expressly treated of. A Note is added (pp. 55-60) recalling the distinction between "the two senses of Reality" explained in the Address for 1883: the first philosophical, in which "*Esse* is *Percipi*"; the second scientific, in which "Existence is the Order of Real Conditioning".

*The Anatomy of Negation.* By EDGAR SALTUS. London: Williams & Norgate, 1886. Pp. 226.

The author gives a sketch—in which, as he points out, "no attempt has been made to prove anything"—of "anti-theism from Kapila to Leconte de Lisle". "The anti-theistic tendencies of England and America have been treated by other writers; in the present volume, therefore, that branch of the subject is not discussed." The chapters of the book are (1) "The Revolt of the Orient"; (2) "The Negations of Antiquity"; (3) "The Convulsions of the Church"; (4) "The Dissent of the Seers"; (5) "Spinoza—The Seven Sages of Potsdam—Holbach and his Guests"; (6) "The Protests of Yesterday"; (7) "A Poet's Verdict". The last is an essay on Leconte de Lisle as a representative of "theoretic pessimism".

*Scientific Romances.* No. V. "Casting Out the Self." By C. H. HINTON, B.A. London: Swan, Sonnenschein, Lowrey & Co., 1886. Pp. 205-29.

With this part (following on the others previously noted in MIND) the author completes his series of speculations on the knowledge of space, being here not less concerned with that subject in its purely theoretic aspect because he chooses a title of apparently ethical import. The title has a reason in the author's own psychological experience, as he seeks to show by way of conclusion to the whole inquiry.

*The Mechanism of Nature.* An Essay on the Fundamental Principles of Natural Philosophy. By ALFRED M. STAPLEY, late Berkeley Fellow of the Owens College, Manchester. Manchester: J. S. Cornish, 1886. Pp. 71.

Mr Stapley's tract deserves recognition as an earnest attempt to give explicit statement to the fundamental metaphysical conceptions involved in the scientific study of nature. It has, at the same time, the more ambitious aims of restating these conceptions in what seems to the author their true philosophical character, of showing the dependence on them of the general laws of nature as established by science, and indirectly of simplifying and exhibiting the close inter-relation of the most general physical axioms accepted in science. The work shows considerable acquaintance with philosophical and scientific speculation, and proves the author's genuine interest and no small ability in the abstract problems of thought. But its form renders it hard to appraise its value, and will in all probability cause it to receive less attention than may be its due. Science does not readily tolerate large and far-reaching metaphysical conceptions, the scope and grounds of which are equally ambiguous. It is almost impossible to say what is the extent and what the justification of the very general considerations with which the Essay starts. The positions are laid down in over-dogmatic fashion, and the language, though apparently precise, leaves the largest possibilities of misinterpretation open. At the critical points, moreover, it appears as though Mr Stapley rather darkened counsel. The topic of the essential tri-dimensionality of space (§§ 31-33), on which the writer has seemingly been much influenced by Lotze, is not handled in a way to overcome that writer's well-weighed scruples, and while we willingly leave to the judgment of scientific

experts the estimate of the objective worth to be assigned to the effort at deduction of the universal law of physical action, we must express the opinion, from the metaphysical side, that the reasoning seems to involve, as so many similar reasonings have done, the vice of subreption. It would be unjust, however, not to add that the treatment of the fundamental mechanical and thermo-dynamical laws has the merit of bringing into relief the close connexion of the radical ideas involved.

*The Life of Philippus Theophrastus, Bombast of Hohenheim, known by the name of Paracelsus, and the Substance of his Teachings concerning Cosmology, Anthropology, Pneumatology, Magic and Sorcery, Medicine, Alchemy and Astrology, Philosophy and Theosophy, extracted and translated from his rare and extensive Works and from some unpublished Manuscripts.* By FRANZ HARTMANN, M.D., Author of *Magic, &c.* London: George Redway, 1887. Pp. xiii., 220.

The author is an enthusiastic devotee of "the teachings of Eastern Adepts," and writes the present work because many things about which these "have to this day kept a well-grounded silence were revealed by Paracelsus three hundred years ago". It is evidently based upon an intimate knowledge of the great magician's writings, and casts useful light upon some movements in these days. Chap. i. contains a short life of Paracelsus (pp. 1-21), with a list of his works (pp. 22-6) as collected by "John Huser, doctor of medicine at Gronglogan, on the request of the Archbishop Prince Ernst of Cologne," and published at Cologne in 1589-90. Chap. ii. consists of Explanations of Terms used by Paracelsus, including some other Terms frequently used by Writers on Occultism" (pp. 27-40). The remaining chapters set forth the teaching of Paracelsus under the heads enumerated in the title. An Appendix (pp. 199-213) consists of articles on various subjects from "Adepts" to "Zenexton," including one on "the Elixir of Life". Perhaps the chapters on "Magic and Sorcery" and on "Alchemy and Astrology" will best repay the curious reader. In the latter he will find directions for preparing "the Electrum Magicum" (p. 171), "homunculi" (p. 174), and "artificial gold" (p. 177). One of the notes (pp. 174-7) contains an account of the actual preparation "by a Joh. Ferd. Count of Kueffstein, in Tyrol, in the year 1775," with the assistance of "an Italian Mystic and Rosicrucian, Abbé Geloni," of "ten homunculi—or, as he calls them, 'prophesying spirits' (consisting of a king, a queen, a knight, a monk, a nun, an architect, a miner, a seraph, and finally of a blue and a red spirit)—preserved in strong bottles, such as are used to preserve fruit, and which were filled with water". Of this account the author remarks—"There can hardly be any doubt as to its veracity, because some historically well-known persons, such as Count Max Lamberg, Count Franz Josef v. Thun, and others, saw them, and they possessed undoubtedly visible and tangible bodies; and it seems that they were either elemental spirits, or, what appears to be more probable, homunculi" (p. 177).

*L'Évolution de la Morale.* Leçons professées pendant l'Hiver de 1885-6. Par CH. LETOURNEAU, Président de la Société d'Anthropologie, Professeur à l'École d'Anthropologie. Paris: Adrien Delahaye et Émile Lecrosnier, 1887. Pp. xx., 478.

The author, who writes from a point of view which may best be compared with that of Dr. Maudsley in England, aims at preparing the way, by a study of the actual evolution of morality, for the construction of a scientific ethics free from all "metaphysics," and founded consciously, as the first morality was unconsciously, on social self-preservation and utility.



In the course of his exposition he gives a clear and interesting account of the principal results of modern researches, historical and anthropological, on the origins of civilisation. Morality and religion, he finds, were at first independent, and in classical antiquity with its "laic morality" they always remained so to a great extent. The supernatural sanction, having become powerful, has often helped to enforce the precepts of a sound morality; but "from the moment when the conduct of men is regulated by the caprice of the gods, everything becomes possible"; and it is now of importance for social progress "to remind them that their kingdom is not of this world". "Metaphysical morality," of which in ancient times that of Plato and in modern times that of Kant may be taken as types, is merely "the shadow of religious morality". The definitive utilitarian morality sketched out by Epicurus and carried further by Bentham has been provided with its scientific basis by Mr. Herbert Spencer. Existing "moral instincts" are to be explained as the result of a process resembling the training of domestic animals by man: nothing being taken for granted except experiences of social good and evil, the power of "the nerve-cell" to retain impressions, and the fact of heredity. It is on the educating agencies, social and governmental, by which moral discipline is imposed, rather than on the fact of heredity, that the author lays stress in his actual exposition. There may be a struggle, he remarks, between "ancestral influence" and the action of "the social medium," but in the end the latter is all-powerful. "Education, the manner of life, fabricates morality." He holds it as proved "that there is a law of social evolution superior to the influences of race and environment, and that, to advance, human groups must pass through a successive series of social forms, analogous in all countries". This results from "the fundamental identity of physical and mental organisation in all the human race". The stages of moral evolution are, up to the present, (1) the "bestial" stage of the primitive man and of the lowest modern savages—inferior to the moral level of some of the higher animals—in which cannibalism is an ordinary fact; (2) the "savage" stage when cannibalism has been transmuted normally into slavery, although it may still survive as "religious" or "juridical" cannibalism; (3) the "barbarous" stage, marked by the formation of a more or less complete code of laws out of the old customary morality, society being still based on slavery; (4) the "mercantile" stage—reached only in quite modern times—when for slavery the payment of wages has been substituted. To the anticipated objection that this classification takes no account of the higher moral types, the author replies that moral elevation is in all ages very rare, though never entirely absent; it is the lower social facts that are characteristic. Yet progress, although slow, is real, and there is no reason to fear that the mercantile stage of morality will be the final stage. The origin of justice is found by the author in the primitive "reflex movement of defence," which first takes social form in the *lex talionis*. Retaliation, having been commuted into various compensations, is at length taken out of the hands of private individuals altogether, and the chiefs of tribes become the justiciars. It is then that the disinterested notion of "ideal justice" begins to be formed. All societies have passed through a communistic stage, such as that which fixed itself in the ancient Peruvian monarchy. It was probably in this stage that the "altruistic instincts" were formed which have continued to resist "the egoistic influences of private property," manifest above all in mercantile societies.

*Victor Cousin et son Œuvre.* Par PAUL JANET de l'Institut. Paris: Calmann-Lévy, 1885. Pp. vii., 485.

The time having at length arrived when it appeared possible to set forth

with impartiality the whole of the work accomplished by Victor Cousin, the author has supplied what remained wanting for the full recognition of its importance, *viz.*, "a complete and detailed monograph founded on dates and texts". While admitting that Cousin's action in stimulating others was more important than any contributions of his own to philosophy, M. Janet still contends that, besides being a diffuser of foreign ideas in France, he was a real philosopher himself, though not pre-eminently a philosopher. That his originality has of late not found recognition, or has even been altogether denied, is, he admits, in great part Cousin's own fault. He was constantly modifying his works in a literary spirit, and destroying their characteristic features, and in his later years he was under the influence of a religious reaction. This explains the concessions with which he is reproached to common sense on the one hand and on the other to religious orthodoxy. What struck his original hearers, however, was his speculative audacity and his selection of the most abstruse problems in preference to those with more practical bearings. This impression is confirmed by the study the author has made of the earlier editions of his works and of the original records of his courses of lectures. Cousin's later error, M. Janet points out, has not only injured his own reputation but also that of his school; and to restore to spiritualism its place as a philosophy among other philosophies, to remove from it the accusation of being a mere *ancilla theologiae*, has been the ungrateful task to which his disciples were long condemned (pp. 396-7). Another reproach against Cousin is the reactionary and stereotyped character of the scheme of philosophical education founded by him. This, the author contends, rests on a complete misapprehension. Cousin's reactionary period comes after the close of his official life; and his "official" scheme was neither reactionary nor a stereotyped expression of his own philosophical doctrines. He really did for philosophical instruction in France what Descartes did for philosophy itself,—separated and enfranchised it from theology and substituted a modern philosophy for scholasticism. The misapprehension of the real character of his administrative activity comes from failure to appreciate the historical circumstances. On many points the opposing parties—the advocates of laic and of theological education—have changed sides since Cousin's day. The historical view enables us to see also the importance of Cousin in philosophy itself. Ideas that have since become common property were then new. To Cousin's generally recognised merits as "the creator and organiser in France of history of philosophy" must be added the conception and putting into circulation of far-reaching ideas, such as that of treating the ontological problems of German schools of philosophy by the psychological method. After describing all the various sides of Cousin's activity, the author is able to give a most effective summary both of his contributions to thought and of the results of his literary and philosophical influence in France (pp. 451-4); and this while recognising as clearly as anyone the "grave defects" of his best thinking, its "want of coherence and want of precision," and above all the predominance in him of the oratorical over the philosophical spirit. In an appendix (pp. 455-485) an article is reproduced that appeared in the *Revue des Deux Mondes* on the 1st of February, 1867, a few days after the death of Cousin, containing some personal details that did not admit of incorporation in the systematic study.

*Histoire de la Science Politique dans ses Rapports avec la M. orale.* Par PAUL JANET, Membre de l'Institut, Professeur à la Faculté des Lettres de Paris. 3me Edition, revue, remaniée et considérablement augmentée. 2 Tomes. Paris : F. Alcan, 1887. Pp. ci., 608; 779.

This work still stands so much alone as a serious attempt to cover the

whole historical field of political science (in relation with morals) that, upon issue of this present revised and greatly enlarged edition long after the second has been exhausted, some note may be taken of the progressive transformations it has undergone from the beginning. Commenced in 1848 and "crowned" in 1853 as an essay upon a subject set by the Academy of Moral and Political Sciences—"to compare the moral and political philosophy of Plato and Aristotle with that of the most distinguished modern publicists," it was, before publication in 1859 (when it was again "crowned"—this time by the French Academy), re-cast into the form of a *History of Moral and Political Philosophy*. In this form it had such acceptance that a second edition became necessary; but now the author saw the hopelessness of giving an adequate account of the historical development of ethics and of politics concurrently, and, concentrating himself upon the history of politics, held by his earlier idea only so far as never to leave out of view the question of relation to ethics when this was prominent with any political theorist. The book thus obtained its final title, and under the new guise appeared in 1872. The present edition differs from the previous one only by revision and enlargement, but the revision has been careful and minute, especially in the matter of bibliography, and the enlargement is very considerable. On the point of bibliography—always understood within the period, down to 1789, that he professes to cover—the author believes "that there does not remain a political name or writing of any importance not mentioned either in text or notes," and certainly the Bibliographical Index (ii. 745-63), bringing together all the references scattered throughout the volumes and adding others, gives evidence of the most wide-reaching labour, and should prove proportionately useful for purposes of reference. (M. L. Picavet has helped the author towards this comprehensive Index.) The enlargement is chiefly by the addition of chapters on the Encyclopedists, on moral and political philosophy in Italy and Scotland, on the American publicists,—making the *History* more adequate and complete down to its appointed term (the French Revolution); but there is also now given, in a concluding chapter (pp. 727-43), a sketch of the later political theorising in France, with some notes on English and German publicists of the present century, besides a very interesting Introduction (pp. v.-lxxi.), in which M. Janet discusses the relations of *Droit* and Politics, as in an Introduction to the second edition he discussed the relation of Morals and Politics. The new Introduction carefully investigates the import of the American and French declarations of "Rights of Man," and seeks, from the philosophical and even the historical point of view, to justify such formulation against the attacks of contemporary French thinkers of the positive and historical school (like MM. Taine and Boutmy). The Conclusion is intended only as a first and most general sketch, which the author hopes he may, still at his age, eventually develop into a third volume of the work. If he does so, he should add at least the names of Austin and Sir Henry Maine to those that he now notes as of importance on this side the Channel.

*L'Irréligion de l'Avenir. Étude de Sociologie.* Par M. GUYAU.  
Paris: F. Alcan, 1887. Pp. xxviii., 479.

Instead of "the religion of the future" M. Guyau prefers to speak of "the irreligion of the future," because, although he might justifiably have used the first expression, he wishes to avoid all that kind of "symbolism" by which, as he thinks, an appearance is sometimes given of preserving what is in reality overturned. Another reason for the choice is that the "higher stage of religion," which in the future is to supersede religious dogmas and rites, is conceived as continuous not with present religion

but with present science and philosophy and independent morality. The sub-title indicates that the author regards religion as in its origin a "sociological" theory of the universe, and expects "the irreligion of the future" to assume finally just such a "sociological" form. In part i. ("Genesis of Religions in Primitive Societies," pp. 1-102) he contends, against Prof. Max Müller, that "the sense of the infinite" and other emotions of the kind, instead of explaining the origin of religions, are signs of their decomposition; and, against Mr. Spencer, that men did not at first distinguish between things animate and inanimate, but before any idea of spirit had been formed were able to "anthropomorphise" nature. For primitive peoples "nature is a society". Everything in which an interest is felt—that is, everything that can be useful or dangerous—is thought of as having a will. After the stage of "concrete naturism" in which the universe is "a society of living bodies," comes "dualist animism"; last of all comes the doctrine of a "metaphysical unity". The subject of part ii. ("Dissolution of Religions in actual Societies," pp. 103-298) offers occasion for comparison of the practical influence of Catholicism, Protestantism and Free Thought. Especially in this part there is much incidental discussion of social questions of the day. Part iii. ("The Irreligion of the Future," pp. 299-479) contains first a sketch of an ideal society in which "free association of intelligences, wills and sensibilities" has taken the place of religious rites, while "individual metaphysical hypotheses," perhaps approaching one another closely in essence, yet each having its own personal shade, have superseded the dogmas of Churches. In the later chapters the author goes through the series of possible metaphysical hypotheses detached from religion; discussing in succession "Theism," "Optimistic and Pessimistic Pantheism," and "Idealistic, Materialistic and Monistic Naturalism". His personal preference is for a form of Monism in which "life is the synthesis of matter and spirit"—a synthesis which, he thinks, is made by science itself. "Life is fecundity," at first unconscious, afterwards consciously manifesting itself in "intellectual and moral fecundity". This theory, applied to ethics in the author's last work, here forms the basis of speculations on a possible "definitive result of evolution". By a more and more complete "social interpenetration," an "intercosmical consciousness" may at length be attained. Beings in whom the law of the universe has become perfectly conscious of itself will be able henceforth to hold in check the process of dissolution. "Immortality would be a final acquisition made by the species for the benefit of all its members."

*Le Magnétisme Animale.* Par ALFRED BINET et CH. FÉRÉ, Médecin-adjoint à la Salpêtrière. Avec Figures dans le Texte. Paris: F. Alcan, 1887. Pp. 284.

This book (say the authors) "has been written in the atmosphere of the Salpêtrière," and it is well fitted to give readers the exact knowledge that is wanted of the remarkable experiments on human beings that have now for so long been conducted at that hospital under the auspices of M. Charcot. Hypnotism (for which the authors in their title somehow prefer to retain the older question-begging name) is truly the subject of the hour with psychological inquirers, and will soon be brought forward again at length in these pages, in respect of some of its latest and strangest developments. (Note also, already in this No., the observations at p. 154 below.) Before giving, from p. 62 of the present work, their clear and straightforward account of the phenomena they have witnessed in "subjects" of the three hypnotic states distinguished by M. Charcot as "Lethargy," "Catalepsy," "Sonnambulism," and putting such psychological interpretation upon the phenomena as with trained ability they can, the authors give a

history of "Animal Magnetism," which may be taken as pretty complete for France, while it takes account also of the work at least of Braid in England. For the French Academy of Medicine, in particular, the subject, alternately spurned and recognised over and over again, has been a sore trial. To all appearance, it has at last been recognised on the footing of one with which science must henceforth steadily and progressively reckon.

*Les Conditions physiques de la Conscience.* Par ALEXANDRE HERZEN, Professeur à l'Académie de Lausanne. Genève : H. Stapelmohr, 1886. Pp. 55.

This is a new statement by Prof. Herzen of the grounds and results of his formulation of the law of the physical conditions of consciousness, briefly described in *MIND*, iv. 268-70. An Appendix (pp. 39-55) is added in which the author seeks to determine the elements of the feeling of personality. Especially worthy of notice as a piece of original psychological observation is his description of the phenomena of recovery from syncope (pp. 20-24), by which he obtains support for his theory of the degrees and kinds of consciousness in the spinal cord, the sensori-motor centres and the cortical centres of the cerebral hemispheres respectively. The use he makes of his observations may be compared with Mr. Spencer's use of similar observations on consciousness under chloroform (see *Psychology* i. and *MIND*, iii. 555). The consciousness that accompanies the functioning of the spinal cord and of the lower centres is, he concludes, at its maximum in the lower vertebrates, at its minimum in man; being more and more suppressed by the development of the higher centres. The "physical law of consciousness" itself, however (for which see *MIND*, iv. 269), is the same for all parts of the nervous system. In the higher centres also consciousness is perpetually shifting its ground as organisms evolve. What was at first a conscious process becomes with repetition, as so many writers have shown, "automatic". This does not mean, however, that the total amount of consciousness becomes less. So long as the plasticity of a race or an individual remains, the more perfect organisation of any set of processes serves as the basis for a more and more complex consciousness of higher processes. The whole study deserves attention as certainly one of the best attempts yet made at a synthesis of results in the special subject-matter.

*Leçons de Philosophie.* Par ELIE RABIER, Professeur de Philosophie au Lycée Charlemagne, Membre du Conseil Supérieur de l'Instruction Publique. II. *Logique*. Paris : Hachette et Cie., 1886. Pp. 384.

M. Rabier's *Logique* presents the same characteristics as lent a special interest to his *Psychologie*, noticed in *MIND*, x. 305. The *Psychologie* was not only a remarkably well arranged and clearly expounded treatise on its subject, but showed the traditional spiritualism of the French school ready and eager to take advantage of all the newer lights—in particular anxious to appreciate and as far as possible incorporate the results of recent English investigation. How strongly moulded the *Logique* also has been by the like influences appears in nothing more clearly than in the prominence given to "Applied" over "Formal" Logic, after the distinction is made in terms that would seem perfectly familiar to any English student. "Applied Logic" (or, as in opposition to "Formal" it might better have been designated, "Material") occupies almost three-fourths of the whole work, and does not omit any of the more important usual topics, while also including others, not less important, that have not yet received sufficient attention in the English books. Chap. xvi., "General Method : Analysis

and Synthesis in the different kinds of science" (pp. 293-316), especially deserves mention from this point of view; but the whole second division of the work (pp. 93-382) could not be read by any student without great profit. The "Formal Logic," carried out on conceptualistic lines, has its own merits, but on the whole comes considerably short of what in England would now be regarded as an adequate treatment of the subject. The discussion of Mill's theory of Syllogism is, however, noteworthy. It is now indicated that the remaining topics included by the author under "Philosophy" (see former notice in *MIND*) will be treated in one volume still to come of *Morals and Metaphysic*.

*Notizia degli Scritti e del Pensiero filosofico di PIETRO CERETTI* accompagnata da un Cenno autobiografico del medesimo intitolato *La Mia Celebrità*. Per PASQUALE D'ERCOLE, Prof. ord. di Filosofia nell' Università di Torino. Torino: Unione Tipografico-editrice, 1886. Pp. ccccx., 189.

Two volumes of the posthumous works of Ceretti were noticed in *MIND*, Vol. x. 620. In the present volume an autobiographical piece (pp. 1-119), together with some fragments in prose and verse, is edited, with notes, by Prof. Pasquale d'Ercole, who has also provided it with an extensive introduction (pp. xv.-cccx.). Having carefully studied his writings (published and unpublished), Prof. d'Ercole, in this introduction, besides giving some biographical details, expounds systematically Ceretti's philosophical and other ideas. Copious extracts are given both in the text and in foot-notes, from an early Hegelian work in Latin, entitled *Pasaeologices Specimen*, one of the few writings of Ceretti that were published in his lifetime. Prof. d'Ercole distinguishes two phases of Ceretti's thought; the first purely Hegelian, the second marked by a departure from pure Hegelianism. Of the first, the distinctive formula is that "the Absolute is Spirit," of the second that "the Absolute is Consciousness".

*Geschichte der Ethik*. Erste Abtheilung: *Die Ethik der Griechen und Römer*. Von THEOBALD ZIEGLER, Professor am Gymnasium in Baden-Baden. Bonn: Emil Strauss, 1882. Pp. xiii., 342.

*Geschichte der christlichen Ethik*. Von Dr. THEOBALD ZIEGLER, ord. Professor der Philosophie in Strassburg. Strassburg: Karl J. Trübner, 1886. Pp. xvi., 593.

These two volumes, of which the second has just appeared, are noticed together, not because they form parts of a single book,—for the change of publisher goes along with a difference both of external form and mode of treatment, and, as the author tells us, the two volumes do not necessarily appeal to the same readers,—but because they are parts of the working out of a single plan laid down five years since in the preface to the first volume. The author's ultimate purpose is to construct an ethical system adequate to modern needs; but first, in view of the dependence of all possible systems on the past, he has set himself to make a complete survey of the forms of ethical thought that have succeeded one another in the philosophical development of Europe. Direct consideration of Oriental philosophies is thus excluded, their influence being only incidental; and the whole history of ethics falls into three periods—the Græco-Roman period, the (exclusively) Christian period, and the modern period since the rise of Humanism. The distribution of the subject-matter of the new volume, on Christian ethics, will be best understood from the titles of the chapters, which are as follows:—(1) Judaism; (2) The Ethics of the New Testament; (3) The Ethics of the old Catholic Church; (4) Monachism: Augustine and Pelagianism; (5) The Ethical Doctrine of Scholasticism; (6) The Germans and the Church; (7) Mediæval Mysticism; (8) Humanism and

the Reformation ; (9) The Ethics of the Reformers ; (10) The Ethics of the Protestant Church ; (11) From the Anabaptists to Pietism ; (12) Jesuitism. The author expresses the hope that the greater attention given to applied ethics and to the reciprocal influence of ethical philosophy and actual morality may make the volume a supplement to Jodl's exposition, confined more to principles, in the *Geschichte der Ethik in der neuern Philosophie*. His general view, only briefly indicated,—for the purpose of this volume, as of the first, is not criticism but history,—is that recent historians have done something more than justice to the Middle Ages and something less than justice to Humanism. The second volume, as has been said, is not uniform with the first on the ethics of the Greeks and Romans, which has, for example, very copious and detailed notes and references (pp. 249-342), while in the new volume the notes are comparatively few ; but the difference of treatment was from the outset part of the author's plan. The view of the history of ethics in the light of general history is a feature of both volumes ; but the first is much more exclusively concerned with philosophical ethics than the second. The author is here, as he acknowledges, in closer contact with the sources. One of the merits of his work is the combination of full and accurate detail with great clearness of outline and directness of movement. The exposition of general philosophical tenets is brief but sufficient for the understanding of the ethical systems. The author follows Zeller (to whom the book is dedicated), but with independence of judgment. Points on which he especially insists are (1) that the ancient ethical systems are all "realistic," in the sense that they were all founded on some natural impulse of man, and never, even when most apparently ascetic, became like Christian ethics the assertion of an external rule in contradiction to human nature as a whole ; and (2) that "measure and harmony," being characteristic of the Greek national conception of virtue, find expression in every Greek ethical system. With "realism" or "naturalism" goes "intellectualism,"—the placing of insight first among the virtues. From the typical Greek conception of *καλοκάγαθία* it resulted that "the æsthetic moment" was an element in all the ancient ethical systems, so far as they were not modified on Roman soil, including even Neo-Platonism. That the modern world has lost this conception is partly due to an advance in insight, and marks the gain of a new distinction ; partly it is a real loss—the loss of the whole "æsthetic moment" from ethics. Again, so long as Greek freedom remained, there was an intimate union of ethics with politics ; and (as is indicated in the second volume) what the moderns have to learn more and more from the history of Greek ethics is the necessity of "the political moment"—the reference to the State—in any complete morality.

*Entwicklung und Glückseligkeit.* Ethische Essays von B. CARNERI. Stuttgart : E. Schweizerbart (E. Koch), 1886. Pp. 469.

Although these essays and reviews are not exclusively ethical in subject, the title is justified not only by the large space devoted to the discussion of questions of ethical philosophy, but also by the relation in which the discussion of theoretical questions stands to the author's ethical doctrine. The term "ethics" itself he uses in an extended meaning, comprising under it not only "morals in the narrower sense" but every application that can be made of "the philosophical sciences" to the guidance and perfecting of human life. He finds himself in general agreement with Mr. Leslie Stephen, whose *Science of Ethics*, as well as *English Thought in the 18th Century*, he enthusiastically reviews (xxiii., xxiv.). His own doctrine, however, is not without distinctive features ; the most important divergence from Mr. Stephen being in the view taken of the respective functions of



"society" and "the state" in the origin of morality. In an essay on "The State and Morality" (xv.), and elsewhere, the author contends that morality was formed under the direct action of the state rather than of "society". It is the state, he holds, that makes society possible, not society the state (p. 232). This essay, it may be mentioned in passing, is one of the best and most characteristic in the volume, the author's view of "the free state" having special interest. "Morality in the wider sense" (*Sittlichkeit*), as distinguished from "morals" (*Moral*), or obedience to traditional moral precepts, is made to include that care for personal well-being on which Mr. Stephen lays stress while excluding it from morality properly so called (xxiii.). *Æsthetics* also, though outside morality in the narrower sense, is to be included under "ethics," or the science of "*Sittlichkeit*" (xxi., "*Zum Problem des Schönen*"). The good and the beautiful both depend on the true. In the order of development, accordingly, intelligence precedes art and morals, the growth of intelligence being itself made possible by the protection of the state. The ideal of "*Sittlichkeit*" is thus not merely the moral but the complete man. The "ethical" aim is happiness, which coincides with "development," individual and social. The "moral" aim is social "health" or "well-being". This distinction the author finds to be recognised by Mr. Stephen, and only not made perfectly explicit because of the want of an English word for "morality in the wider sense". Of the essays not directly occupied with ethics or *æsthetics* (i.-xiii., besides two or three of the later ones) the most are devoted to the exposition of the "real-idealistic monism" which the author makes the basis of his practical philosophy. This monism he attaches to the doctrine of the Eleatics, "the ancient representatives of idealism" (vi.), as well as to the "Materialism and Sensualism of the 18th century" (iv., v.). While admitting the imperfections of these latter doctrines from the point of view of the theory of knowledge, he at the same time claims for them that they only need correction in the light of ideas that have since been better understood to give a true view of the origin and nature of human consciousness. As the moral sense did not exist in the beginning but is the final flower of the civilised state, so life and consciousness do not belong to "elements" but arise out of their combination,—a combination of which the organism is the material expression.

*Ethik. Eine Untersuchung der Thatsachen u. Gesetze des sittlichen Lebens.* Von WILHELM WUNDT. Stuttgart: F. Enke, 1886. Pp. xi., 577.

In like form with his *Logik*, Prof. Wundt here presents a systematic treatise on Ethics. Though he has won his chief fame upon a field from which Ethics seems somewhat remote, those who remember his early work *Vorlesungen über die Menschen- u. Thierseele* will know that his interest on the subject now treated reaches back to quite the beginning of his philosophical career. For the present, till Critical Notice follows, it may suffice to mention that, while recognising the indefeasible relation of Ethics to pure Psychology, he relies upon Folk-psychology or Anthropology as affording the effective basis of ethical inquiry—this, as against the notion that the true basis is to be found in Metaphysics, which must rather itself be founded upon ethical considerations; on the other hand, when he comes to the philosophical determination of the principles of Morality, he finds himself in what some may think—but which, he contends, is not really—surprising agreement with certain main positions of the Kantian school of speculative idealism. After a short Introduction, the work falls into four parts: (1) The Facts of the Moral Life, (2) Systems of Moral Philosophy, (3) The Principles of Morality, (4) The Departments of Moral Life.

*Die Ethik als Wissenschaft, mit besonderer Berücksichtigung der neueren englischen Ethik.* Eine philosophische Abhandlung von Dr. HANS VOLTZ. Strassburg: Karl J. Trübner, 1886. Pp. 55.

The author aims at developing an ethics of "pure Positivism". His discussion of the ethical question proceeds on the basis furnished by "the German Positivism" (as represented by E. Laas and Prof. v. Gîżewski) on the one side, and Utilitarianism (as represented by Prof. Sidgwick) on the other; the ethics of Evolution (as represented by Mr. Spencer, Mr. Stephen and W. H. Rolph) being taken up incidentally. To his discussion of the question, "What may we expect from the scientific treatment of ethics?" ("Ethischer Theil," pp. 19-55), he prefixes a consideration of the preliminary question, "What may we expect generally from the scientific treatment of any object-matter?" ("Erkenntnisstheoretischer Theil," pp. 3-19). The answer to this question is that science can do nothing more than systematise facts and express them by the simplest formulæ. The answer to the ethical question is that science determines the means to morality, which is itself a means to happiness—not necessarily the consciously sought happiness of the individual, but happiness as an "actual result" somewhere. Choice of the end rests finally with the individual, and theoretically there is no way of convincing anyone that his choice is wrong. Practically, however, the possible ends have been reduced to very few. The author decides personally for the formula, "Greatest possible domestic happiness of the greatest possible number the only end, everything else (science included) a means to this". When they have taken the first step—the recognition of science as only a means—others, he believes, will find no difficulty in selecting the same end.

*Kleine Schriften.* Von HERMANN LOTZE. Bd. II. Leipzig: S. Hirzel, 1886. Pp. xviii., 530.

Dr. David Peipers here continues the important service of collecting—and editing with utmost care—the minor writings of a thinker who has been singularly fortunate in inspiring followers with devotion to the memory of his work. Vol. i., noticed in *MIND*, No. 41, swept the field of Lotze's varied activity as a writer till 1846, except that it left over his chief production of that year. This was the article "Seele u. Seelenleben," placed at the beginning of the present volume (pp. 1-204), and much the longest of his three remarkable contributions to Wagner's *Handwörterbuch der Physiologie*. The nineteen other pieces here given are mostly reviews or notices of books written for the *Gött. gel. Anzeigen*, but some of them have a special interest in view of Lotze's own original work on the subjects; particularly the elaborate reviews of Waitz's *Grundlegung der Psychologie* in 1847 (pp. 284-302) and *Lehrbuch der Psychologie* in 1850 (pp. 471-505). There are notices—"Selbstanzeigen"—of his own books on General Pathology and Therapeutics and on General Physiology: also should be mentioned the long essay (pp. 205-72) "Ueber Bedingungen der Kunstschönheit"—a favourite subject—which, after appearing in 1847 in the *Gött. Studien*, was separately issued in the following year. The volume reaches to 1851. There remains a long term of years to be comprised in the third and concluding volume to follow, but these were the years of writings other than minor.

*Werth und Ursprung der philosophischen Transcendenz.* Eine Studie zur Einleitung in die Erkenntnisstheorie. Von MARTIN KEIBEL. Berlin: W. Weber, 1886. Pp. x., 75.

After examining the various arguments on behalf of "the transcendent object," the author concludes that there is no logical proof of it, neither is

it, like the law of causation, an assumption without which all consistent action becomes impossible. Psychologically, the belief in "transcendence" is to be explained as Berkeley explains it: "The mind taking no notice of itself is deluded to think it can and does conceive bodies existing unthought of or without the mind, though at the same time they are apprehended by and exist in itself" (p. 53). From what has been concluded, Solipsism is a necessary deduction. To affirm the independent existence of "the foreign *Ego*" is as much an assumption as to affirm the existence of bodies outside the mind. We may be justified in making this assumption by the demands of the social feelings, as the religious feelings justify us in affirming "the transcendence of God". But how can we determine the degree of validity of any particular assumption? Only by the degree of generality of the need to which it responds. The assumptions referred to would seem, then, to have less justification than the principle of causality; for this last assumption answers to the need that is most widely felt of all, *viz.*, the need of self-preservation. If then we would raise "the transcendence of belief" to universal validity, we must base it on *normative* as distinguished from *actual* grounds; on the emotional needs that *ought* to exist instead of on those that *do* exist. Logically this cannot be attained. It remains for the ethical and the æsthetic philosopher to try if they will be more successful.

*Wie ist Verantwortung und Zurechnung ohne Annahme der Willensfreiheit möglich?* Eine Untersuchung von Dr. H. DRUSKOWITZ. Heidelberg: G. Weiss, 1887. Pp. 40.

The author contends, in opposition to Dr. Paul Rée (see MIND, xi. 137), that man is still "morally responsible," although, as Dr. Rée maintains, the will is neither empirically nor transcendently free. For the individual man is not merely a link in a natural process, but is also a "rounded-off whole," having a certain "independence" and a consciousness of himself as acting well or ill. Self-consciousness and the power of distinguishing between right and wrong carry with them responsibility to society.

*Zur Lehre vom Wesen des Gewissens.* Von Dr. A. WECKESSER. Bonn: Emil Strauss, 1886. Pp. vi., 98.

The results of this historical and critical study are (1) that the developed conscience has a material principle in the common life of men and a formal or *a priori* element in the feeling of unconditional validity and universality which accompanies the "idea of good" that is its content; (2) that it has three stages of development, *viz.*, the "statutory-authoritative" and the "individual" conscience—which are "preliminary steps before it becomes ethical,"—and, finally, "the ethical-religious conscience". The "ideal type" of the first of these stages is the Mosaic law, "and in the wider sense also social-political morality in the Græco-Roman period". Of the second the type is the affirmation of the individual conscience against society by the Sophists. Christian ethics is the synthesis of both.

*Friedrich der Grosse als Philosoph.* Von EDUARD ZELLER. Berlin: Weidmann, 1886. Pp. vi., 298.

The only attempt previous to the present to estimate Frederick the Great as a philosopher was Rigollot's *Frédéric II. Philosophe* (Paris, 1875). Prof. Zeller speaks of his predecessor's work with warm appreciation, the chief defect he finds in it being the want of exact reference to the sources. This he supplies in the notes (pp. 183-296)—full of interesting citations from Frederick's works and correspondence—which he has appended to his own systematic exposition. The exposition itself is of the quality that might be

expected from the author. Nothing is left out that can contribute to a knowledge of Frederick's views, of the changes they underwent, and of the influences by which they were formed. After an introduction (pp. 1-4) there follow five chapters on Frederick's metaphysical, ethical and political ideas, two on his attitude to religion and his views on education, and lastly a brief retrospect (pp. 177-82). The effect of the whole is to convey a vivid impression of the great king's unceasing interest in philosophy, and of the way in which he formed his practical aims in the light of general ideas. The independence of his attitude towards his philosophic friends, especially on questions relating to human nature and human life, is well brought out. Notwithstanding his admiration of the method of Bayle and his general adhesion to the doctrines of Locke, he is found to have always remained to some extent under the influence of the Leibnizo-Wolfian philosophy; and a certain difference of his attitude to religion from that of Voltaire—a difference which exists also between the German and the French "Enlightenment"—generally—is traced to his Protestant as distinguished from Voltaire's Catholic education. The author shows what an important influence ancient philosophy—known to Frederick through translations—and especially Stoicism, had on his mind; and sees in his strenuous ideal, and in his "severe feeling of duty," a realisation of Kant's categorical imperative.

*Die geschichtliche Entwicklung des Bewegungsbegriffes und ihr voraussichtliches Endergebniss.* Ein Beitrag zur historischen Kritik der mechanischen Principien. Von Dr. LUDWIG LANGE. Leipzig: W. Engelmann, 1886. Pp. x., 141.

The historical part of this book, although very full, is not offered as a complete account of the development of the conception of motion; the author's aim being to arrive at the true conception by the help of the history, rather than to give the history for its own sake. After dealing briefly with the conception of motion in antiquity and in the Middle Ages (c. i., pp. 8-16), he divides the rest of his history into three chapters treating respectively of the periods "from Copernicus to Newton" (c. ii., pp. 16-83), "from Newton to the Present" (c. iii., pp. 84-108), and "in the Present and Future" (c. iv., pp. 108-125). There follow two appendices containing applications to special problems. The definition of motion given as the outcome of the whole historical development is—change of position of a body relatively to an object of reference. Obvious as it seems, this definition, the author finds, is not even yet applicable without self-contradiction to the actual treatment of motion by science; the older conceptions of an "inherent motion" of bodies and of their "absolute motion" with reference to "absolute space" having left abiding traces in scientific terminology. The contradictions revealed, however, are only apparent, and may be got rid of by a new statement of mechanical and in particular of astronomical doctrines in accordance with the true conception of "the relativity of motion". This the author attempts by means of the subsidiary conceptions which he puts forward of "the inertial system, the inertial scale, inertial rotation, and inertial rest" (p. 118).

*Zur Reform des Unterrichtes in der Philosophischen Propädeutik.* Von Dr. W. JERUSALEM, k.k. Gymnasial-Professor in Nikolsburg. Wien u. Leipzig: A. Pichler's Wittve und Sohn. Pp. 32.

This contribution to the discussion of "philosophical propædæutic" in the Austrian Gymnasia may be compared with Dr. Meinong's, noticed in MIND, x. 624. Like Dr. Meinong, the author regards psychology as the basis of all philosophical study, and complains that it does not get adequate recognition in the present official scheme. He supports the regu-

lations, however, against Dr. Meinong, in so far as they make the whole of the psychological course, and not merely the elementary part of it, come before logic. In two divisions of his pamphlet he sketches out a course of psychology and logic; suggesting in psychology improvements on the traditional Herbartian treatment.

*Ueber die Geistesfreiheit vulgo Willensfreiheit.* Psychologischer Nachweis von H. THODEN VAN VELZEN, Dr. theol. zu Jena. Leipzig: Fues (R. Reisland), 1886. Pp. vi., 78.

The author's contention is that freedom ought to be ascribed to the Ego, not to "the will". The conception of "freedom," like that of "will" itself, denotes a certain activity of the mind; hence both conceptions alike should be attached directly to the mind; to attach one of them to the other is as if we were to speak of "the activity of an activity" or "the power of a power". The activity of the Ego is "a willing or a not willing," a choosing among representations. Only of the Ego, as of the active being in us, can it be said that it begins anything of itself; but this expression also ought to be avoided, for without the phenomena of the external world and memories in the mind the Ego would have nothing to choose from. It therefore does not absolutely begin anything, but is only "relatively free".

*Die Entstehung der neueren Ästhetik.* Von Dr. K. HEINRICH VON STEIN, Privatdozent an der Universität, Berlin. Stuttgart: J. G. Cotta, 1886. Pp. vi., 422.

The author, while recognising that the real origin of reflective thought on art must be sought further back, regards its continuous development in modern times as beginning with the French Classicism of the 17th century. What the different European nations have contributed to æsthetics will best be made clear, he thinks, in following the course of the French influence, which at first was the determining influence everywhere. Accordingly, his history of the origin of modern æsthetics begins with Boileau; reference being made in the systematic exposition to the earlier sources of modern æsthetic theory. The divisions of the book are as follows:—Section I, "French Classicism,"—c. i. "Boileau and his Predecessors," c. ii. "The Connexion with Descartes," c. iii. "The Classical Spirit"; Section II. "The Direction towards the Natural,"—c. i. "The Æsthetic Formulæ of the Period," c. ii. "Shaftesbury and English Classicism," c. iii. "The Descriptive Æsthetics of the British," c. iv. "Dubos, Diderot, The Epoch of Rousseau"; Section III. "Comprehension of Æsthetic Problems by Swiss, Italians, Germans,"—c. i. "The Swiss," c. ii. "Italian Æstheticians, Theories of Music," c. iii. "The Æsthetics of Baumgarten and his School," c. iv. "Winckelmann". The division into sections indicates the author's view of the development of æsthetic theory, in which he finds three chief phases. The æsthetic doctrine that first took shape is summed up in Boileau's hemistich, "*Rien n'est beau que le vrai*". This doctrine the author finds to be dependent, through Port Royal, on Descartes; citing from a work of Nicole, published in 1659, expressions—*e.g.*, "*pulchritudinis fontem in veritate esse*"—by which he thinks Boileau may have been influenced. The second phase of æsthetic theory is "naturalism,"—the theory of "imitation of nature". The naturalistic doctrine is best represented by Diderot who made beauty consist in abundance of the "relations" contained in a work of art,—in fulness of content as distinguished from simple expression of some one clear idea. The next transformation was partly accomplished by Rousseau, whose real originality was not in his appeal to the taste for landscape, which was

already characteristic of the "naturalism" of his age, but in his disclosure of the ideal of internal "feeling". What remained still to be seen was the significance of artistic "form"; and this was disclosed by Winckelmann. Notwithstanding the condemnation Rousseau pronounces on art as such, there is much resemblance between his doctrine and that of Winckelmann, as was seen by Diderot (p. 268). Winckelmann's ideal, like Rousseau's, consists in a certain mode of internal feeling, not in a harmony with external nature. The difference is that while Winckelmann finds his ideal realised in the works of antique art, Rousseau seeks it in a return to what he calls, following the manner of speech of his age, the "natural" life. It was Winckelmann's ideal that gave the direction afterwards to German Classicism, especially to its poetical work, Winckelmann's doctrine being, indeed, specially applicable to poetry as Diderot's is to painting; but the positive influence of Winckelmann had to be preceded in the minds of Goethe and Schiller, by the negative influence of Rousseau, the "conscious contradiction of the forms of the ruling civilisation". The author gives very full accounts not only of these chief phases of æsthetic theory but of the doctrines he regards as transitions among them. He notices too in the representatives of each doctrine the elements of other doctrines derived from predecessors. Diderot, he points out, insists on the intellectual element in art—"l'esprit," and is so far in agreement with the canons of French Classicism. Rousseau is strongly opposed to the intellectual tendency, it being inconsistent with his ideal of feeling; but on the other hand he had enough in common with the "naturalism" of his period to find recognition at its hands, and even to be taken for its typical representative.

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NOTICE will follow.

## VIII.—NOTES.

### ON A CASE OF ALLEGED HYPNOTIC HYPERACUITY OF VISION.

In an interesting paper which appears in the *Revue Philosophique* for November last, M. Bergson of Clermont-Ferrand gives an account of a case of supposed thought-transference or clairvoyance which turns out to be much more probably explicable by hypnotic hyperacuity of vision. The large majority of my readers no doubt conceive thought-transference to be a mere delusion, but they may feel some interest in tracing the abnormal physiological conditions which in this curious instance led at first to the belief that a transmission of ideas or images was taking place by other than the recognised channels of sense. And to the few who have satisfied themselves that such transmission does sometimes occur it is specially important to sift away all the spurious cases which, while apparently supporting, must in the end discredit the novel theory.

Briefly, then, MM. Bergson and Robinet found that a boy, who was supposed to be a clairvoyant, or a telepathic percipient, could read figures and words under the following conditions. One of the observers hypnotised the boy, stood with his back nearly against the light, opened a book at random, held it nearly vertically facing himself, at about four inches from his own eyes, but below him, and looked sometimes at the page and sometimes into the boy's eyes. The book had often to be slightly shifted; but ultimately the boy could generally read the number of the page. Asked where he saw it, he pointed to the back of the book, just opposite the number's true position. Asked where the binding of the book was, he put his hand underneath the book, and indicated the place where the binding would have been, had the book faced him.

It occurred to M. Bergson—and he deserves full credit for being the first to insist on this precaution—that, small though the figures were, the boy might really be reading them as reflected on the cornea of the hypnotiser. Experiments with slightly altered position showed that in fact the boy could not read the letters unless adjustment and illumination were carefully made as favourable as possible. The letters were 3 mm. in height,—nothing is said of their thickness,—and their corneal image would be about 0.1 mm. in height, as M. Bergson computes, under the conditions employed. This seems a very small image to see distinctly; but Mr. J. N. Langley and Mr. H. E. Wingfield, who have kindly tried some careful experiments to test this point, inform me that they can read in each other's cornea the reflexion of printed letters of about 10 mm. in height. We know from Binet and Féré's experiments, &c., how greatly the hypnotic state does sometimes increase acuity of vision; and we may, I think, conclude that the boy probably did read the letters on his hypnotiser's cornea.

What, then, are we to make of the boy's statement that he saw the words as though in a book facing him? M. Bergson feels sure that this was the boy's real belief. There was no suspicion of charlatanism, and in fact the boy disliked the experiments, and now, as M. Bergson writes to me, refuses to renew them. M. Bergson supposes, and I think justly, that this was a case of *simulation inconsciente*; the hypnotised subject genuinely referring his sensations to the source to which his *first* hypnotiser (a believer in thought-transference) had suggested to him that they were due.

And, in fact, this unconscious simulation which leads the subject to refer his unusual sensations to the special cause which his hypnotiser, or some



caprice of his own mind, suggests, is a not uncommon and a very interesting phenomenon. It was observed, for instance, by Elliotson, who pointed out a good many hypnotic peculiarities which his successors are now gradually rediscovering. It is a *hypnotic exaggeration* of a familiar phenomenon, namely, of the large infusion of erroneous inference which we most of us import into the account which we render to ourselves of our ordinary sensations.

A particularly curious case is briefly described in the *Journal of the Society for Psychical Research*, June, 1884. A man was brought to us who, when hypnotised, could often name cards held in front of him, although his eyes had been plastered up and bandaged in a most elaborate way. The man's friends took this for clairvoyance, and the man assented, being sure that he could not see the cards in the usual way. They 'flashed upon him,' as he said. Now after a good deal of puzzling over the case, Mr. R. Hodgson found that he also could sometimes manage to see over similar bandages, through small chinks between the skin and the paper gummed over the eyes. But he, too, found that he saw fitfully, the power of vision seeming to come and go,—and he actually could not tell with which eye he was seeing, except by covering each eye in turn with his hand. The distorted position of the eyeball, and the minute and oddly-placed channels of vision, produced so much confusion that there seemed no reason to suppose that the hypnotised subject's belief that he was seeing 'clairvoyantly' was other than genuine.

The case of M. Bergson's boy seems to have been a similar one. And his idea that he was reading from the book seems to have been a sort of compromise between the feeling that he was reading *somewhere* and the hypnotiser's suggestion that the words were being transferred supernormally from mind to mind.

Thus far, then, M. Bergson's narration and explanation seem credible enough, and his argument as against thought-transference in this boy's case seems well made out. But he proceeded to further experiments which, as recounted, seem incredible, and which may lead some readers to distrust the accuracy of the whole series.

To explain the difficulty, I must first point out that the word *hyperæsthesia* is loosely used for three different classes of phenomena. It is used (1) for an exaggeration of the familiar action of specialised organs, as when the eye is sensible to very small amounts of light. It is used (2) for alleged perceptions, which would imply a specialisation of what I may term our *undifferentiated fund of nervous sensibility* in novel directions. Sensibility to the action of magnets, of metals in contact, of medicaments at a distance, may or may not exist, but should scarcely be called by the same name as (say) the eye's extra sensitiveness to light. And again, the word is used (3) for cases where our non-specialised organs are credited with performing functions which, so far as we can see, demand a definite sense-specialisation, or our specialised organs are credited with functions which, on measurable anatomical grounds, appear to overpass the limits of their specialisation. This last class of cases must be received with extreme caution.

Well, M. Bergson says that he showed the boy a microscopic photograph of twelve men, its longest diameter 2 mm., and that the boy saw and imitated the attitude of each man. Also that he showed the boy a microscopic preparation, involving cells not greater than .06 mm. in diameter, and that the boy saw and drew these cells.

Now I might, in the first place, object that thought-transference was not formally excluded, since M. Bergson himself knew the photograph and the look of the cells. I do not press this, for the other experiments seem to me to negative thought-transference in this case; I merely point out that

if we wish to prove that a subject does not receive an image from our minds we should present to him an object with which we are ourselves unacquainted.

But the real difficulty is as regards the *minimum visibile*. It is usually supposed that in order to produce a definite image more than one retinal cone must be stimulated; and that consequently no object can be separately discernible which does not subtend (say) an angle of sixty seconds, or whose retinal image is less than (say) .004 mm. in diameter. Floating particles, none of them exceeding .0029 mm. in diameter, have, I believe, been seen as a *cloud* in a ray of electric light sent through a tube of filtered air, but have never been seen *separately* by the naked eye.

Now the *retinal image* of an object itself only .06 mm. in diameter, and placed within the range of distinct vision, will be much less than .004 mm. in diameter. To bring it up to this minimum the retinal image must be  $\frac{1}{15}$  of the size of the object itself; and this implies a nearness to the eye involving mere darkness and blur. The microscopic slide was presumably transparent; but nothing was said as to the transparency of the *photograph*, and yet the points distinctly visible on the photograph must have been even *smaller* than the cells on the slide.

A letter with which M. Bergson has favoured me has done much to remove these difficulties. It seems that the photograph was transparent, and that the boy held it close to his eye. Moreover, after seeing the photograph the boy could not read ordinary print. "C'est trop grand," he said; and it was some time before the eye (which M. Bergson believes to have been always myopic—query hypermetropic?) resumed its normal state. It seems, then, conceivable that hypnotic suggestion had induced (by spasm of the ciliary muscle?) some change in the shape of the crystalline lens, which made the eye a microscope for the time being. Mr. George Wherry has kindly communicated to me two somewhat analogous cases, where ciliary spasm (itself induced by microscopic or telescopic work) led to unioocular diplopia, in one case even triplopia. In these cases *irregular* ciliary spasm turned the lens into a kind of *multiplying glass*:—is it possible that M. Bergson induced a *regular progressive* ciliary spasm, which turned the lens into a powerful *magnifier*?

Turning back to the question with which we started, the possibility of a hyperæsthetic explanation of cases of supposed telepathy, I must add that I earnestly hope that the experiments recorded in *Phantasms of the Living* may receive careful criticism from this point of view. Few, if any of them, will, I think, be found explicable by the *cornea-reading* discussed above, but there may be other sources of error which have escaped our care. Yet in the hands of some critics hyperæsthesia itself assumes attributes almost magical. In the *Revue Philosophique* for December Dr. Rault maintains that he and others have frequently sent subjects to sleep "by an effort of will" in an adjoining room; but that the real cause of the sleep was the suggestion given by the changed sound accompanying the hypnotiser's quickened circulation, which the subject hears through the wall. This is meant, it seems, to apply to the Havre case, now well known, of *sommeil à distance*, where Dr. Gibert or M. Pierre Janet can throw Mme. B into the hypnotic trance, "by an effort of will," from their houses to hers.<sup>1</sup> Yet I confess that, whatever may be the true meaning of this curious history, I find it hard to believe that a peasant woman is sent to sleep by "the sound of a going" in the arteries of an elderly physician, at a distance of half a mile.

FREDERIC W. H. MYERS.

<sup>1</sup> An account of this case will be found in the *Proceedings of the Society for Psychological Research*, Part x., Art. "Telepathic Hypnotism".

## RICHARD SHUTE.

The death of Richard Shute, of Christ Church, which took place on Sept. 22, is a serious loss to philosophical studies at Oxford.

In 1877, when quite a young man, Shute published his *Discourse on Truth* (reviewed by the Editor in MIND, ii. 392)—a remarkably ingenious work, indicating a reaction from the teaching of Mill along lines which were perhaps insufficiently defined, but abounding in bright suggestions by the way which give it a value quite independent of the tenability of the positions which it seeks to maintain. This work attracted attention in Germany, and was made the basis by Uphues of his treatise, *Grundlehren der Logik nach Richard Shute's Discourse on Truth bearbeitet* (Breslau, 1883). In later years Shute gave much time to Aristotelian studies, especially to the text of the *Physics*. Some of the results of these studies have already appeared (*Anecdota Oxoniensia*, Classical Series, vol. i. part 3, Aristotle's *Physics*, book vii., collated by Richard Shute, M.A. Clarendon Press, 1882); and papers which he has left behind contain additional matter which, it is to be hoped, may yet be published.

It is not, however, of the books which he might have written, had he lived, that those who knew him best are now thinking most, but of the loss sustained by a system of education which owes much of what is best in it to influence conveyed in private conversations. The forces by which the young students of *Literæ Humaniores* at Oxford are affected may be distinguished broadly as 'rhetorical' and 'dialectical'. Of these the 'rhetorical' are naturally the more powerful in most cases. The air is full of views on all subjects of speculative and practical interest—abstract and one-sided because received passively from lectures and epitomes and magazine-articles, not actively apprehended in the original research of the student himself. These abstractions are the natural product of a place in which many young men beginning to think are thrown together, and they would not do much harm if they were not useful. But they are eminently useful. The Oxford Examination-system, as such, in spite of many honest efforts on the part of those who work the machine, gives a decided advantage to the man who can make a clever 'rhetorical' use of 'probable opinions'; and the rhetorical habit encouraged by this system bears fruit afterwards in influence exerted through various popular channels, of which journalism is perhaps the most important. It may be admitted that wide practical influence in a country like England could not be obtained without the 'rhetorical habit'—no 'movements' could be started, and the life of the nation would perhaps stagnate; but in the spheres of speculation, science and literature, within which the activities of a university are properly confined, it is a mischievous habit. Happily however this uncritical 'rhetorical habit,' fostered by the Examination-system, is somewhat chastened by a spirit of 'dialectic' which the system has not succeeded in entirely banishing from Oxford teaching. Much time is still given (and this is one advantage at any rate of the College-system) to private conversations between teacher and single pupil. These conversations are the hardest pieces of work which the teacher has to do, if he does them properly; and the most useful instruction received by the pupil is often derived from them, if he prepares himself for them by critical study of the subjects discussed.

It was in such conversations that Shute excelled. "He riddled through one's seeming knowledge," as one who was once his pupil has expressed it. This was the first effect of his conversations. Beginners were often discouraged, and thought that there was no truth to be obtained on the subjects discussed. But when they came to know Shute better they began to

suspect that he was even enthusiastic about the truth. His enthusiasm was perhaps all the more catching that it was, at first, only suspected; at any rate, his pupils followed his singularly lucid expositions addressed studiously to the logical understanding, with the growing feeling that it is a solemn duty which man owes to himself, as a rational being, to try to be clear-headed. Intellectual clearness, as such, seemed to be presented as a duty. But his more intimate pupils and friends came to see that he valued intellectual clearness not merely for its own sake, but as indicating that ideas incapable of logical handling were being kept out of discussion and left to reign in their own proper sphere. These pupils and friends observed that in his philosophical conversations (as in his ordinary talk) he held much in reserve. He was reticent—almost ironically so—about those ideas which may be summarily described as ‘moral and religious,’ when others were tempted to discuss them and hope by discussion to make them clearer. This, those who knew him well had learned to understand, was not because these ideas did not interest him, but because he felt that they were not objects of speculation but practical principles of life. And he showed how deeply they interested him by his own life. The acute dialectician never asked himself ‘the reason why’ he should spend his failing strength in doing his best for the mental improvement of his pupils. He simply assumed that it was worth doing; and that was his ‘metaphysic of ethics’.

In the foregoing account of Shute's Oxford work, stress has been laid on his personal influence, because it is the influence of persons—the significant silence, or the timely word, with effects reaching through a whole lifetime—not the influence of books produced which is the really important philosophical influence of Oxford. Green's influence, for example, was of this kind. It is difficult, indeed impossible, to convey to others an adequate impression of the philosophical influence of a person. But Shute's friends and pupils who may read this notice will understand why prominence has been given to his personal influence; and others, who have been fortunate in their philosophical teachers, will understand that a philosophical reputation which, like his, rests on a personal influence powerful to shape lives, is placed on a very solid foundation.

At the end of this necessarily inadequate estimate of Shute's philosophical life and influence, a few lines respecting the facts of his external life will not be out of place. He was born in 1849. He belonged to an old family which was already settled at Monkton Combe in the time of Elizabeth. His school was Eton. From Eton he went to Cambridge, where he resided for a year, and then migrated to Oxford. In 1873 he took a First Class in *Lit. Hum.*, and was elected to a Senior Studentship at Christ Church. In 1875 he went to Bombay as Professor of Logic and Moral Philosophy, but his health obliged him to return to England within a year. Coming back to Christ Church in 1876, he soon became Tutor, and performed the duties of his Tutorship up to the day of the sudden beginning of his last illness. He examined several times in *Lit. Hum.*; he took an active part in college business; and held the office of Proctor when his last illness came upon him. He died in London on Sept. 22, 1886, and was buried at Woking.

J. A. STEWART.

Mr. Patrick Proctor Alexander, M.A., the very clever author of *Mill and Carlyle* and (following on Mill's replies in the third edition of the *Examination of Hamilton*) of *Moral Causation, or Notes upon Mr Mill's Notes* (1868), also of *Spiritualism: a Narrative with a Discussion* (1871) and other writings, died at Edinburgh on Nov. 14th last, at the age of 63.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY.—The eighth session commenced with the addition of ten new members to the ranks of the Society. Mr H. W. Carr, a Vice-President, was elected to fill the office of Hon. Secretary, vacated by Mr. Rhodes in consequence of illness; and Mr S. Alexander, of Lincoln College, Oxford, was elected a new Vice-President. At the first meeting, Monday, Nov. 8, the usual address was delivered by the President, the subject this year being "The Reorganisation of Philosophy". At the following meeting, on Monday, Nov. 22, Mr. D. G. Ritchie read a paper on "T. H. Green's Political Philosophy," which was followed by a discussion.

THE PHILOSOPHICAL SOCIETY.—The present session was opened on Tuesday, 26th Oct. The subject for the ensuing year is Lotze's *System of Philosophy*. Information is obtainable from the Secretary, J. M. Rigg, Esq., 9 New Square, Lincoln's Inn.

Dr J. M. Cattell has been appointed Assistant-Professor in the University of Pennsylvania (Philadelphia), and will devote himself to the instruction of advanced students in psychophysical work.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. xx. No. 2. S. S. Heberd—The Nature of Thought. K. Fischer—A Critique of Kantian Philosophy (trans.). E. M. Mitchell—The Philosophy of Pessimism. J. Jastrow—On the Symbolic System of Lambert. Hegel—On Giordano Bruno (trans.). Notes and Discussion, &c.

REVUE PHILOSOPHIQUE.—An. xi., No. 10. G. Séailles—L'origine et les destinées de l'art. G. Sorel—Sur les applications de la psychophysique. L. Carrau—La philosophie religieuse de Berkeley. G. Tarde—Avenir de la moralité. Rev. Gén. (A. Penjon—Travaux récents sur la psychologie d'Aristote). Analyses et Comptes-rendus. Rev. des Périod. No. 11 P. Souriau—La conscience de soi. F. Paulhan—Le devoir et la science morale (i.). C. Dunan—Le concept de cause. H. Bergson—De la simulation inconsciente dans l'état d'hypnotisme. Notes, &c. (A. Binet, et J. Delboeuf—Les diverses écoles hypnotiques). Analyses, &c. Rev. des Périod. Société de Psychologie physiologique (F. Paulhan—Note sur la combinaison des images consécutives). No. 12. Pierre Janet—Les actes inconscients et le dédoublement de la personnalité pendant le somnambulisme provoqué. G. Le Bon—Application de la psychologie à la classification des races. L. Arréat—Sexualité et altruisme. F. Paulhan—Le devoir, &c. (fin.). Analyses, &c. Rev. des Périod. Soc. de Psych. phys. (A. Ruault—Le mécanisme de la suggestion mentale. J. Babinski—Transfert d'un sujet à un autre sous l'influence de l'aimant).

LA CRITIQUE PHILOSOPHIQUE (Nouv. Sér.).—An. ii., No. 9. F. Pillon—J. Milsand. L. Dauriac—Parole et musique. C. Renouvier—Des problèmes de l'esthétique contemporaine: La théorie du vers français. L. Dauriac—Un livre nouveau sur Pascal. Notices bibliog., &c. No. 10. C. Renouvier—Examen des *Premiers Principes* de H. Spencer (suite). F. Pillon—La psychologie animale d'après un disciple de Darwin—L. Dauriac—M. F. Brunetière esthéticien et critique. F. Pillon—Un ouvrage récent sur l'alchimie. L. Dauriac—Homère éducateur. No. 11. C. Renouvier—Examen des *Premiers Principes*, &c. (fin). L. Dauriac—L'âme du nouveau-né. E. Blum—Hypnotisme et pédagogie . . . F. Pillon—Paul Bert.

RIVISTA ITALIANA DI FILOSOFIA.—Vol. ii., Disp. 2. P. L. Cecchi—Il Cristianesimo primitivo secondo B. Labanca. N. Fornelli—Esposizione

generale delle teorie pedagogiche di Herbart, &c. C. G. Mor—Proposta pedagogica di un positivista. Bibliog. &c. Disp. 3. F. Bertinaria—Idee introduttive alla storia della filosofia. R. Benzoni—La Simpatia nella morale dell'evoluzionismo e nel sistema Rosminiano. F. Buttrini—Del Programma e delle Istruzione 23 ottobre 1884 per l'insegnamento della filosofia elementare. Bibliog. &c.

RIVISTA DI FILOSOFIA SCIENTIFICA.—Vol. v., No. 7. G. Cesca—Il concetto di sostanza. G. Cantoni—Considerazioni su alcuni fenomeni vitali dei corpi inorganici. Riv. Sint. Riv. Anal. Riv. Bib. (W. W. Ireland, *The Blot upon the Brain*, &c.), &c. No. 8. E. Morselli—Fisiopsicologia dell'ipnotismo. V. Grossi—Il fascino e la jettatura nell'antico oriente (i.). E. Carnevale—Della pena nella scuola classica, &c. Riv. Anal., &c. No. 9. B. Labanca—Concetto della filosofia cristiana. G. Tarantino—Studi nella psicologia inglese: Giovanni Locke. V. Grossi—Il fascino, &c. (ii.). Note Critiche. Riv. Bib., &c. No. 10. G. Cesca—La relatività della conoscenza (i.). A. Vaccaro—Sulla vita dei popoli in relazione alla lotta per esistenza. Note Critiche. Riv. Anal., &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Bd. lxxxix., Heft 2. P. Markus—Die Yoga-Philosophie nach dem Rājamārtanda dargestellt. F. Sattig—Der protagoreische Sensualismus, &c. (Schluss). W. Ribbeck—Zwei Werke über Kant's Erkenntnistheorie. Recensionen. Bibliographie, &c. Beigabeheft. M. Schaster—Ueber einige Principienfehler der modernen Ästhetik. K. C. Planck—Die Grundbegriffe des Rechtes. M. Diez—Die realistische Philosophie K. C. Plancks. E. v. Hartmann—Ueber die Lust als höchsten Wertmassstab. Recensionen.

PHILOSOPHISCHE MONATSHEFTE.—Bd. xxiii., Heft 1, 2. W. Ribbeck—Ueber Plato's *Parmenides*. F. Grung—Der Begriff der Gewissheit in der Kantischen Philosophie. Recensionen u. Besprechungen. Litteraturbericht. Bibliographie, &c.

VIERTELJAHRSSCHRIFT FÜR WISS. PHILOSOPHIE.—Bd. x., Heft 4. G. Heymons—Analytisch, synthetisch. B. Erdmann—Zur Theorie der Apperception (ii.). B. Kerry—Ueber Anschauung u. psychische Verarbeitung. R. v. Schubert-Soldern—Der Kampf um die Transcendenz. Anzeige. Selbstanzeigen, &c.

PHILOSOPHISCHE STUDIEN.—Bd. iii., Heft 4. A. Lehmann—Ueber die Anwendung der Methode der mittleren Abstufungen auf den Lichtsinn. H. K. Wolfe—Untersuchungen über das Tongedächtniss. A. Köhler—Ueber die hauptsächlichsten Versuche einer mathematischen Formulirung des psychophysischen Gesetzes von Weber. L. Lange—Die geschichtliche Entwicklung des Bewegungsbegriffes u. ihr voraussichtliches Endergebniss (Schluss).

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ERRATUM.—In Mr. S. Alexander's article on "Hegel's Conception of Nature" in MIND No. 44, p. 501, line 16, for unity read variety.